# INSTALLATION INSTRUCTIONS

## TURBOCHARGER SYSTEM:
## 2005 – 2006 Ford Mustang GT, Manual Transmission
## P/N 15168

## 2007 Ford Mustang GT, Manual Transmission
## P/N 15178

Turbonetics, Inc. * 2255 Agate Court * Simi Valley, CA * 805-581-0333 * TurboneticsInc.com

## Read This First

Study these instructions completely before proceeding. Engine and/or turbocharger damage may occur if any component within these instructions is improperly installed. Turbonetics, Inc or any of its distributors cannot be held responsible for damages as a result of negligent or improper installation. This complete turbocharger system can be installed using common tools and automotive procedures, but installer must have a thorough knowledge of automotive engine operation and feel comfortable working on the vehicle. If in doubt, contact Turbonetics' technical support staff at 805-581-0333, between the hours of 8:00AM and 5:00PM PST, Monday through Friday.

Remove the turbocharger system from its carton and inspect for any obvious physical damage. All kit components are thoroughly inspected and carefully packaged prior to shipment from the factory. If any shipping damage is evident, contact your supplier and request that they process a claim with the shipper involved. Be sure to review the parts list on page 3 to verify that you have all necessary system components to proceed. If any components in the parts list are missing, contact Turbonetics' customer service staff.

Although this turbocharger system has been designed to use many of the factory emissions controls, it is not currently "smog" legal in California, and therefore recommended for "off road" use only. In other states, check local laws regarding aftermarket modification to emission controlled vehicles.

The information contained in this publication was accurate and in effect at the time the publication was approved for printing and is subject to change without notice or liability. Turbonetics reserves the right to revise the information presented herein or to discontinue the production of parts described at any time.

**SAFETY REQUIREMENTS:** It is recommended to follow these precautions.

- Always wear safety glasses & gloves.
- Turn the ignition switch to the OFF position & disconnect the battery.
- Always use properly rated jack stands when working under the vehicle.
- Prevent unexpected vehicle movement by using wheel chocks and/or parking brake.
- Operate the vehicle only in well ventilated areas.
- Do not smoke or use flammable items near or around the vehicle's fuel system.
- Keep hands, clothing and other objects away from moving parts when engine is running.

**SUPPLIES:** It is recommended to have the following items before beginning installation.

- Ford factory service manual, for your model year Mustang
- A large table or bench, and plenty of adjacent available workspace
- Standard selection of automotive tools, primarily metric sizes
- An assortment of "zip ties" and/or thin-gauge steel wire
- The ability to securely lift the vehicle at least a few feet off the ground
- NPT thread sealant
- Loctite threadlocker
- Replacement engine oil and oil filter
- Hammer
- Drill
- Bench Clamp
- Small Container

**TORQUE RECOMMENDATION:** When removing and re-installing factory fasteners, refer to the Ford service manual for torque values. When installing fasteners included in this kit, refer to the following chart:

| Fastener Size | Torque (Pound-Feet) | Torque (Newton-Meters) |
|---|---|---|
| 1/4" or 6mm | 10 | 13 |
| 5/16” or 8mm | 19 | 25 |
| 3/8” or 10mm | 33 | 45 |
| NPT fittings | 2-3 turns past finger tight | |

**TURBOCHARGER SYSTEM PARTS LIST:**

| QTY | P/N | DESCRIPTION | P/N 15168 | P/N 15178 |
|---|---|---|---|---|
| | | | | |
| 1 | 10781 | Wastegate Ass'y, Evolution | X | X |
| 1 | 11296 | Raptor Valve, Main Assy, 5psi | X | X |
| | | | | |
| 1 | 11294 | Hardware Kit, Nuts/Bolts/Fittings | X | X |
| 1 | 11252 | Hardware Kit, Fuel Parts | X | X |
| 1 | 11310 | Hardware Kit, Clamps | X | X |
| 1 | 11316 | Hardware Kit, Hoses | X | X |
| 1 | 11309 | Hardware Kit, Gaskets, Mustang '05 | X | X |
| 1 | 11307 | Bracket Kit, Ic Mounting | X | X |
| | | | | |
| 1 | 11308-BB | Turbo, 60se-601-S5-Tund0_68 | X | X |
| 1 | 21665 | Tube Ass'y, Exh., Up-Pipe | X | X |
| 1 | 21666 | Tube Ass'y, Exh., Downpipe1 | X | |
| 1 | 21776 | Tube Ass'y, Exh., Downpipe1 | | X |
| 1 | 21667 | Tube Ass'y, Exh., Downpipe2 | X | X |
| 1 | 21668 | Tube Ass'y, Exh., Downpipe3 | X | X |
| 1 | 21669 | Tube Ass'y, Exh., W/G Dump Tube | X | X |
| 1 | 21670 | Bracket, Turbo Support | X | X |
| 1 | 21671 | Bracket, Downpipe Support | X | X |
| 1 | 21879 | Tube Ass'y, Air Intake Tube | X | X |
| 1 | 21673 | Tube Ass'y, Boost Tube 1 | X | X |
| 1 | 21674 | Tube Ass'y, Boost Tube 2 | X | X |
| 1 | 21675 | Tube Ass'y, Boost Tube 3 | X | X |
| 1 | 40300P | Tube Ass'y, Boost Tube 4 | X | X |
| 1 | 21780S | Tube Ass’y, Cast, Throttle Body | X | X |
| 1 | 21677 | Tube Ass'y, Exh., Y-Pipe | X | X |
| 1 | 21678 | Tube Ass'y, Exh., Exhaust Pipe 2 | X | X |
| 1 | 21679 | Bracket, Exh. Support, Up-Pipe | X | X |
| 1 | 21682 | Bracket, Coolant Reservoir Reloc. | X | X |
| 1 | 21761 | Bracket, Coolant Reservoir Reloc. | | X |
| 1 | 21898 | Fuel Controller, Sct Uploader | X | X |
| 1 | 21695 | Coolant Pipe, Upper | X | |
| 1 | 21754 | Coolant Pipe, Upper | | X |
| 1 | 31172 | Heat Shield, T4, Tangential | X | X |
| 2 | 30315 | License Frame - Turbonetics | X | X |
| 6 | 31093 | Safety Wire, Stainless | X | X |
| 1 | 31163 | Filter, Air, 4" Inlet X 6.125" | X | X |

| QTY | P/N | DESCRIPTION | P/N 15168 | P/N 15178 |
|---|---|---|---|---|
| | | | | |
| 1 | 31184 | Filter, Air, 1.5” Inlet | X | X |
| 1 | 5-312 | Intercooler Core Assembly | X | X |
| 2 | 21416 | Badge, Polydome - Jelly Top | X | X |
| 1 | 60107 | Instr., Raptor | X | X |
| 1 | 60117 | Instr., Evolution | X | X |
| 1 | 60164 | Instr., Installation | X | X |

| QTY | P/N | DESCRIPTION |
|---|---|---|

| QTY | P/N | DESCRIPTION |
|---|---|---|

**HARDWARE KIT #11294 (NUTS / BOLTS / FITTINGS) PARTS LIST:**

| | | |
|---|---|---|
| 1 | 20259 | Flange, Oil Drain, 1/2" Npt |
| 1 | 21273 | Tool, Center Punch |
| 1 | 21651 | Fitting, Tee, 5/8" Barb to -6AN |
| 1 | 21652 | Fitting, Tee, 3/4" Barb to -6AN |
| 4 | 21705 | Spacer, Round, Frame Brace |
| 1 | 30133 | Fitting, 3/8" Npt X 5/8", Stra |
| 1 | 30244 | Fitting, 1/2" Npt X 5/8" Strai |
| 2 | 30248 | Bolt, 1/4-20 X 5/8 Serrated |
| 2 | 30306 | Fitting, 1/8" Npt X 5/32", Str |
| 1 | 30307 | Fitting, 1/8" Npt X 5/32", -90 |
| 2 | 30554 | Fitting, Oil Line 1/8" Npt X-4, 90' |
| 2 | 30566 | Bolt, 1/4-20 x 1/2, Hex Head |
| 2 | 30570 | Screw, 5/16-18 X 1", Hex Hd |
| 1 | 30575 | Bolt, M6-1.0 X 16MM |
| 3 | 30576-50 | Bolt, M8-1.25 X 50mm, Hex |
| 3 | 30589 | Washer, Flat, 5/16" or M8 |
| 1 | 30591 | Washer, Flat, M6 |
| 11 | 30593 | Washer, Lock, 5/16" or M8 |
| 2 | 30596 | Washer, Split Lock, M6 |
| 4 | 30653 | Hex Nut, M8-1.25 |
| 2 | 30665 | Nut, Hex, M6 |

| | | |
|---|---|---|
| 5 | 30700 | Bolt, Hex, M8-1.25 X 20mm |
| 8 | 30803 | Nut, Hex, M10-1.25 |
| 8 | 30805 | Washer, Split Lock, M10 |
| 2 | 30806 | Stud, M10-1.25 X 42mm |
| 1 | 30809 | Tap, 3/8 Npt |
| 4 | 30860 | Stud, M8-1.25 X 30mm |
| 1 | 30862 | Hex Plug, M8-1.5, O2 Sensor Bung |
| 1 | 30975 | Fitting, Tee, 1/4 NPT |
| 1 | 30976 | Fitting, ¼" to 1/8" Adapter |
| 1 | 30998 | Fitting, Coupler/Union, 3/4" |
| 4 | 31003 | Bolt, Hex, M10-1.25 X 40mm |
| 2 | 31071 | Screw, M4-0.7 x 10mm, Button Head Cap |
| 1 | 31141 | Fitting, Reducer Tee, 1/4-1/4-3/16 |
| 2 | 31155 | Bolt, Banjo - 16mm |
| 2 | 31166 | Bolt, Hex Hd., M10-1.25 X 50MM |

**HARDWARE KIT #11252 (FUEL COMP'TS) PARTS LIST:**

| | | |
|---|---|---|
| 8 | 31022 | Fuel Injector, Siemens 60lb |
| 1 | 31222 | Harness, MAF Extension |

| | | |
|---|---|---|
| 8 | 31119 | Injector Wire Harness Adapter |
| 2 ft. | 31159 | Slit Loom, High Temp., 3/8" |

**HARDWARE KIT #11310 (CLAMPS) PARTS LIST:**

| | | |
|---|---|---|
| 2 | 30232 | Clamp, V-Band, 2-1/2" |
| 3 | 30242 | Clamp, V-Band, 3" |
| 6 | 30612 | Hose Clamp, Worm Drive, #20 |
| 11 | 30616 | Hose Clamp, Worm Drive, #44 |

| | | |
|---|---|---|
| 9 | 30817 | Hose Clamp, Worm Drive, 5/8" |
| 2 | 31125-250 | Exhaust Band Clamp, 2.50" |
| 4 | 31167 | Hose Clamp, Worm Drive, #72 |

**HARDWARE KIT #11316 (HOSES) PARTS LIST:**

| | | |
|---|---|---|
| 1 | 10724 | Oil Supply Hose Assy, 4X 36" |
| 1 | 21364 | Silicone Hose Coupling, 2-1/2" |
| 1 | 21790-4 | Silicone Hose Coupling, 4.25"ID x 2.25"L |
| 2 | 21657-52 | Water Supply Hose, 52" |
| 1 | 21725 | Hose, Silicone, 4Ply |
| 1 | 30302-4 | Silicone Hose Coupling, 4" |
| 1 | 30380-4 | Silicone Hump Hose, 2-1/2" |
| 2 | 30444-4 | Silicone Elbow, 45deg. - 2-1/2" |

| | | |
|---|---|---|
| 12 | 30542-BK | Silicone Vac. Hose, 5/32" |
| 2.5 | 30828 | Vacuum Hose, 3/8" |
| 1 | 30630-4 | Silicone Hump Hose, 4" |
| 5 | 30827 | Hose, Oil Drain, 5/8" I.D. |
| 2 | 31000 | Hose Coupler, Coolant, 1.50" ID |
| 2.25 | 31027 | Hose, Gen. Purpose, 3/4" ID |

| QTY | P/N | DESCRIPTION |
|---|---|---|

| QTY | P/N | DESCRIPTION |
|---|---|---|

**HARDWARE KIT #11309 (GASKETS) PARTS LIST:**

| | | |
|---|---|---|
| 10 | 2-43620 | Cable Ties, Nylon - 8 1/2" |
| 2 | 20142 | Gasket, Deltagate/Evo |
| 1 | 30141 | Gasket, Oil Drain, T3/T4 |
| 1 | 30143 | Gasket, Turbine Inlet, T4 |
| 1 | 30468 | O-Ring, Base Flange-Godzilla |

| | | |
|---|---|---|
| 1 | 31006 | Loop Strap, 1.0" Diam., 1/4" Hole |
| 4 | 31007 | Heat Shield Wrap, 1.5" Wide |
| 40 | 31042 | Heat Wrap, 1.0" Diam. |
| 5 | 31156 | Washer, Crush - 16mm |

**HARDWARE KIT #11307 (IC MOUNTING) PARTS LIST:**

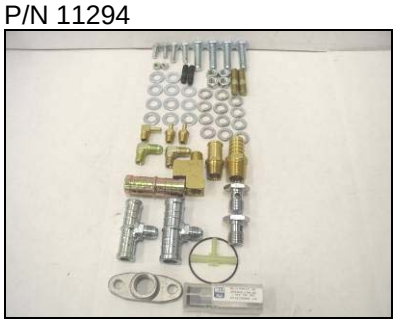
| | | |
|---|---|---|
| 1 | 21680 | Bracket, Ic Mounting |
| 1 | 21681 | Bracket, Ic Mounting |
| 4 | 21704 | Spacer, Round, Aluminum |
| 4 | 30589 | Washer, Flat, 5/16" or M8 |

| | | |
|---|---|---|
| 4 | 30593 | Washer, Lock, 5/16" or M8 |
| 4 | 30653 | Nut, Hex, M8-1.25 |
| 4 | 31076 | Bolt, Hex, M8-1.25 x 30mm |

P/N 10781

P/N 11296

P/N 11294



P/N 11252

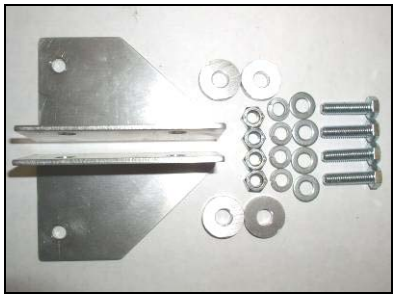
P/N 11310

P/N 11316

P/N 11309

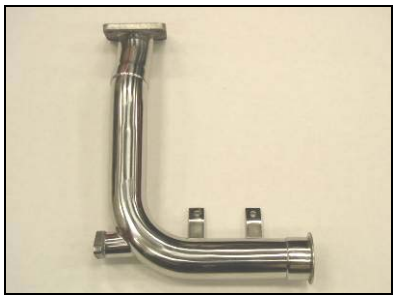
P/N 21780S

P/N 11307



P/N 11308-BB

P/N 21665



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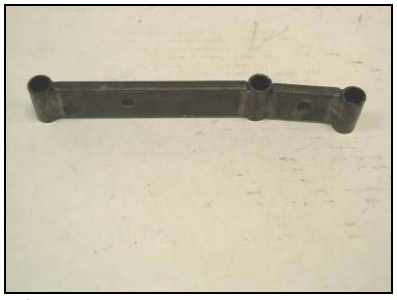
P/N 21675

P/N 40300P

P/N 21667

P/N 21678

P/N 21679



P/N 21682

P/N 21898

P/N 21695

P/N 21754

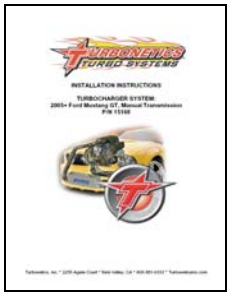


P/N 21761

P/N 5-312

P/N 31172

P/N 60164

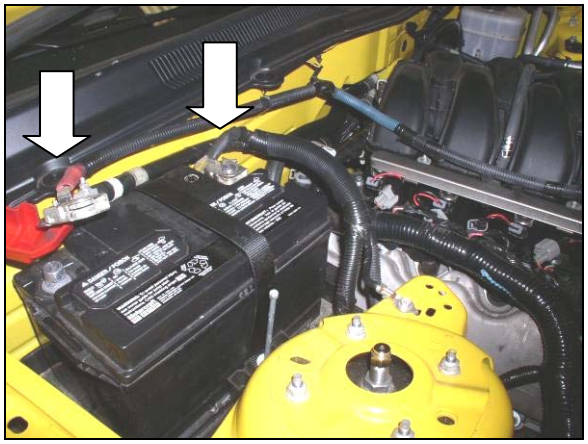


P/N 31163

## PREPARING THE VEHICLE FOR TURBO KIT INSTALLTION

1. Jack the vehicle up to a workable height. Secure the vehicle with jack stands.
2. Using an 8 mm socket unbolt the battery terminals. SEE FIGURE 1

FIGURE 1



3. Using an 8 mm socket remove the battery strap and then remove the battery from the vehicle. SEE FIGURE 2 & 3

FIGURE 2

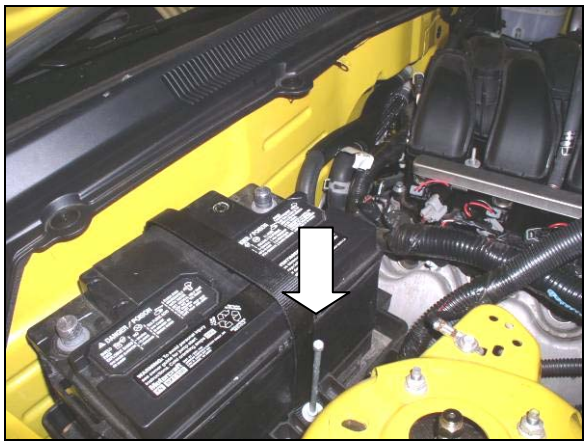


FIGURE 3

4. Using a 10 mm socket remove the 3 bolts securing the battery tray in the engine bay and remove the tray from the vehicle. SEE FIGURE 4 & 5

FIGURE 4

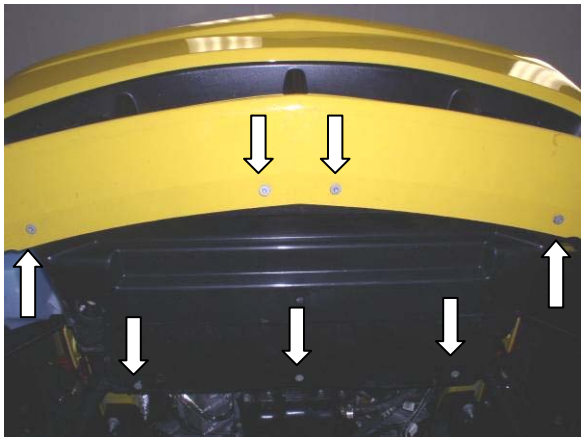
FIGURE 5

5. Set the battery aside for re-installation upon completion of turbo kit installation.

## FRONT END AND ENGINE BAY PREPARATION

1. Using a 5.5 mm socket remove the 7 bolts holding the black plastic undertray in place. Remove the undertray. SEE FIGURE 6

FIGURE 6



2. Remove the front portion of the inner fender liners from both front wheel wells. Use a flat head screwdriver to pop out the plastic fasteners. Not all fastener locations are depicted. SEE FIGURE 7 & 8

FIGURE 7

FIGURE 8

3. Unplug the front blinker and side marker lights on both sides of the car. The plugs are located just inside the bumper at each end. SEE FIGURE 9 & 10

FIGURE 9

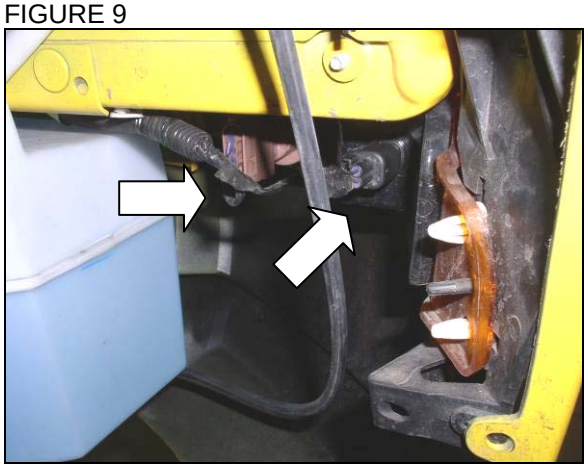
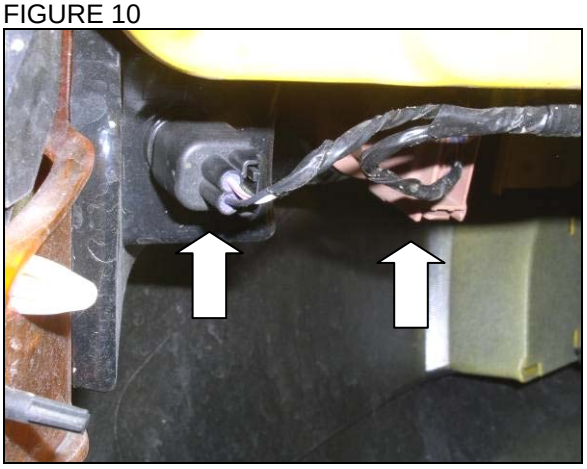


FIGURE 10



4. Using a 10 mm socket remove the 4 nuts, 2 on each side of the car, holding the bumper assembly onto the fenders. SEE FIGURE 11 & 12

FIGURE 11

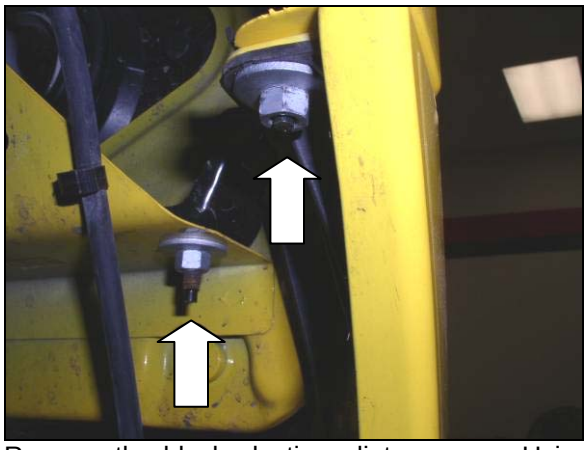
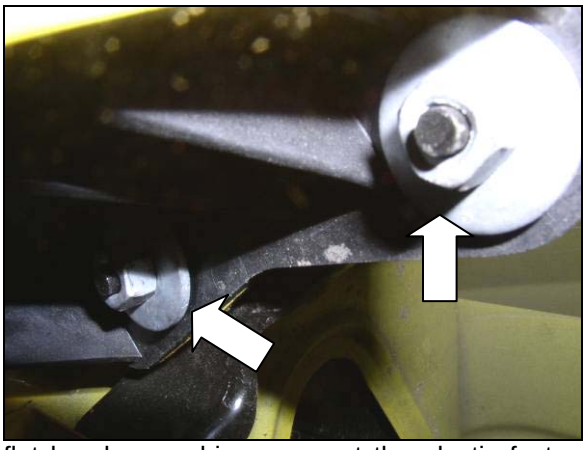


FIGURE 12



5. Remove the black plastic radiator cover. Using a flat head screwdriver pop out the plastic fasteners. Using an 8 mm socket remove the 2 top bolts holding the bumper, one on either side of the radiator cover. SEE FIGURE 13-15

FIGURE 13

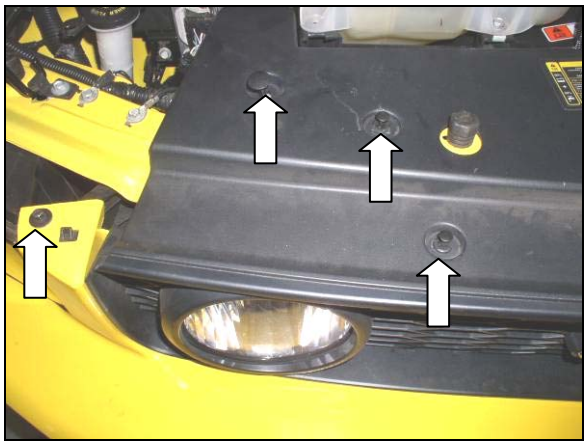


FIGURE 14

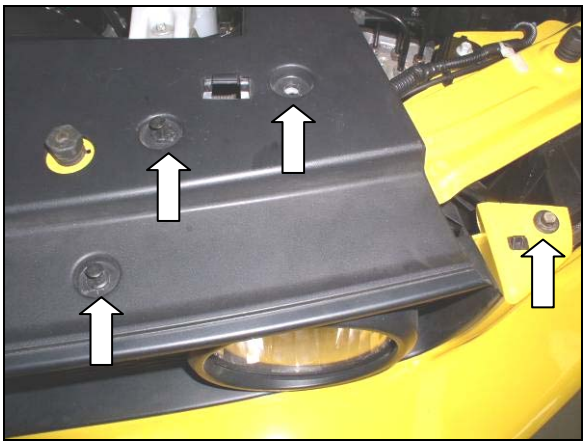


FIGURE 15

6. Slightly pull the bumper forward. Unplug both of the fog lights. The plugs are located behind the light assemblies. SEE FIGURE 16 & 17

FIGURE 16

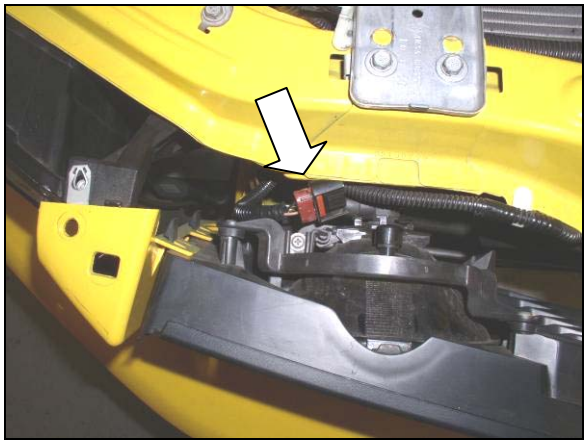
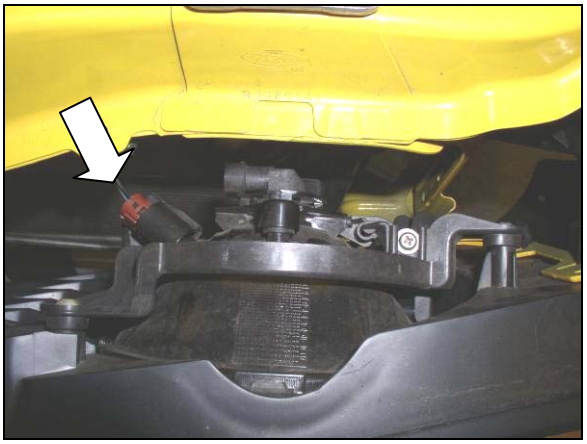


FIGURE 17



7. Carefully remove the front bumper. If there is great resistance check to ensure that all fasteners have been removed and all lights are unplugged. SEE FIGURE 18-20

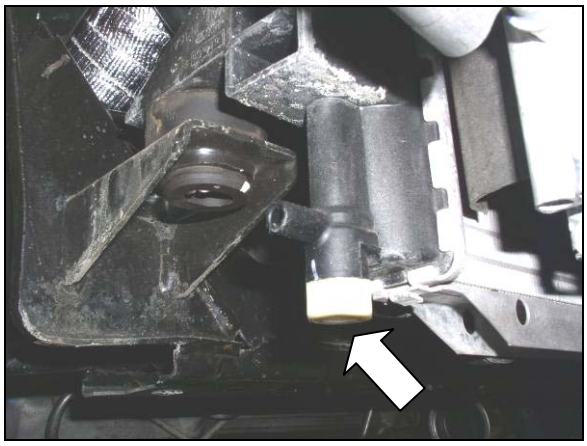
FIGURE 18

FIGURE 19

FIGURE 20

8. Drain the coolant from the radiator through the drain plug located underneath the radiator on the passenger side. SEE FIGURE 21

FIGURE 21



9. Remove the passenger side upper radiator hose. SEE FIGURE 22 & 23

FIGURE 22

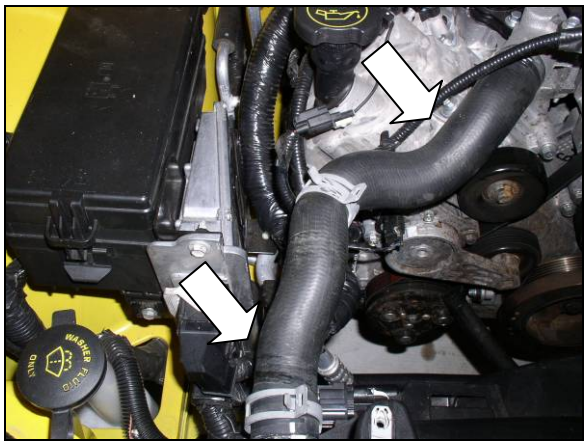


FIGURE 23

10. Locate the ECU in the engine bay next to the fuse box on the passenger side. Unplug the ECU. Pull up on the grey clips to unlock the plugs. Also unplug the large plug that extends off the ECU wiring harness. It is located to the driver side of the ECU. SEE FIGURE 24 & 25

FIGURE 24

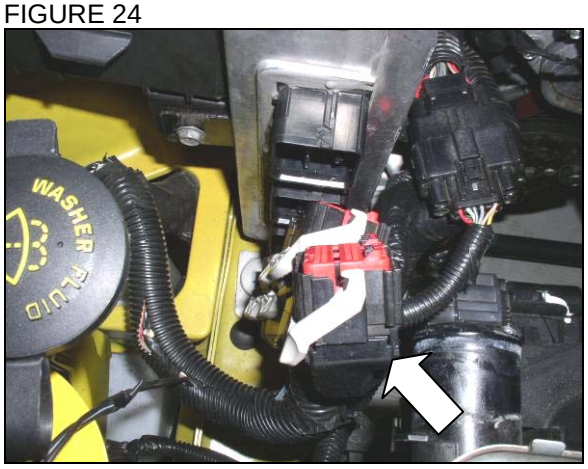
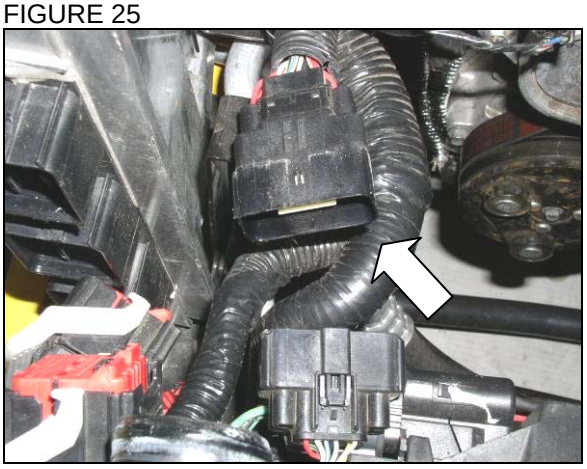



FIGURE 25



11. Using a 10 mm socket loosen the 2 bottom bolts on the ECU bracket. The bolts do not need to be completely removed as the ECU bracket is slotted. SEE FIGURE 26 & 27

FIGURE 26

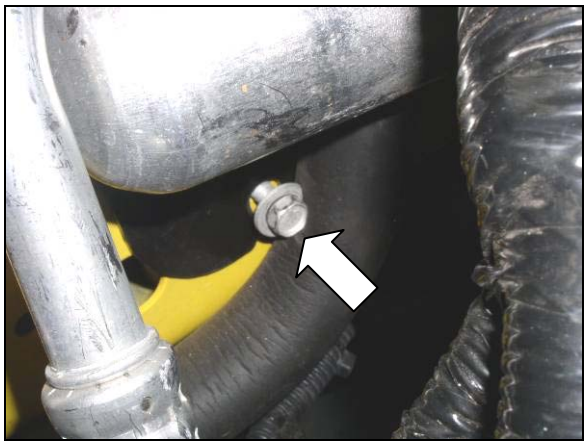
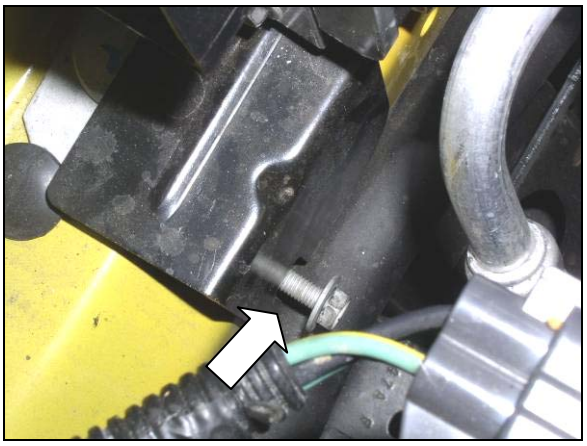


FIGURE 27



12. Using a 10 mm socket remove the 2 upper bolts on the ECU bracket. SEE FIGURE 28 & 29

FIGURE 28

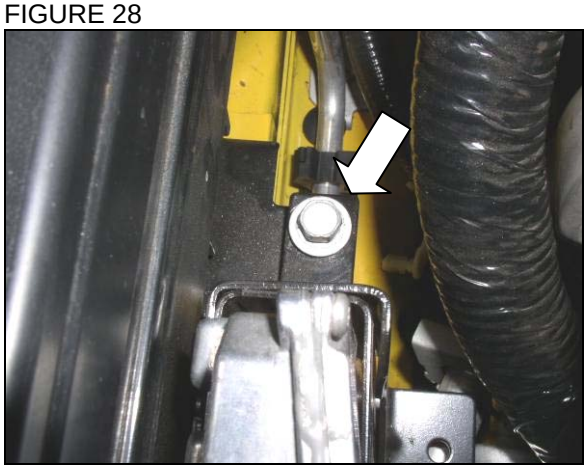
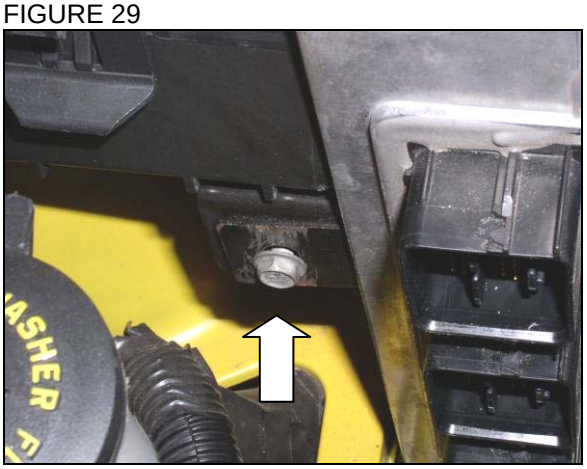


FIGURE 29

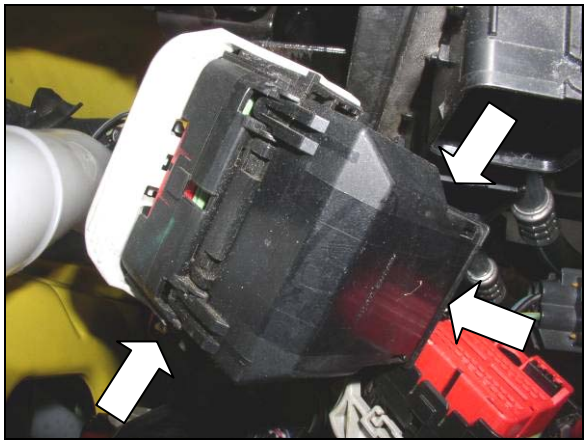


13. Remove the ECU from the engine bay. SEE FIGURE 30

FIGURE 30

14. Remove the plastic covering from the top and bottom ECU plugs. The covering is clipped into the back of the plug, covering the wires. SEE FIGURE 31

FIGURE 31



15. Reroute the ECU wiring harness underneath the fuse box. This routes the ECU wiring harness on the side of the ECU opposite from the stock location. SEE FIGURE 32

FIGURE 32

16. Reinstall the ECU into the engine bay. Secure it using a 10mm socket and the factory bolts. Plug the wiring harness back into the ECU. Also reconnect the plug on the extended portion of the harness. SEE FIGURE 33

FIGURE 33

17. Using an 8 mm socket remove the bolt securing the air box to the engine bay. The air box is located on the driver side of the engine bay. SEE FIGURE 34

FIGURE 34

18. Remove the PCV vacuum hose from its port on the passenger side cylinder head. The hose will unclamp from the fitting once a tab has been pushed to the side. SEE FIGURE 35 & 36

FIGURE 35

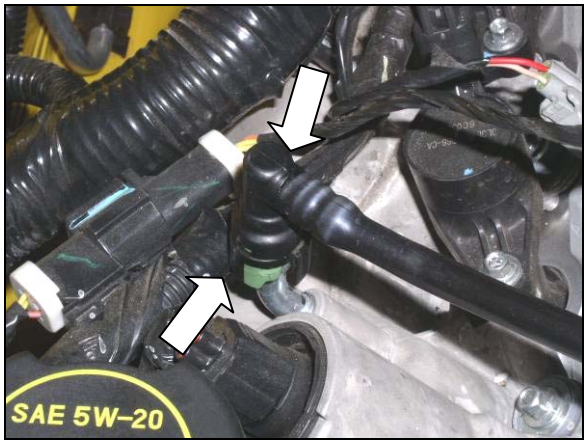
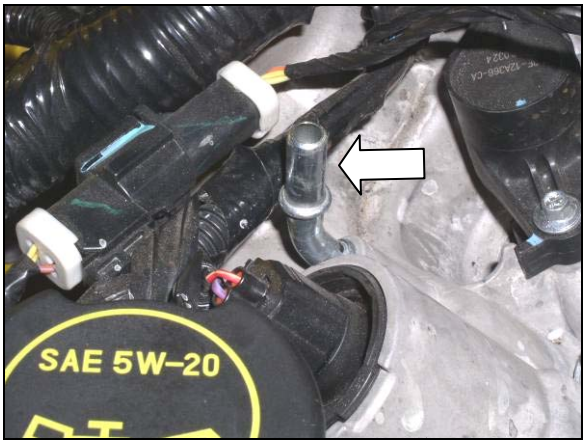


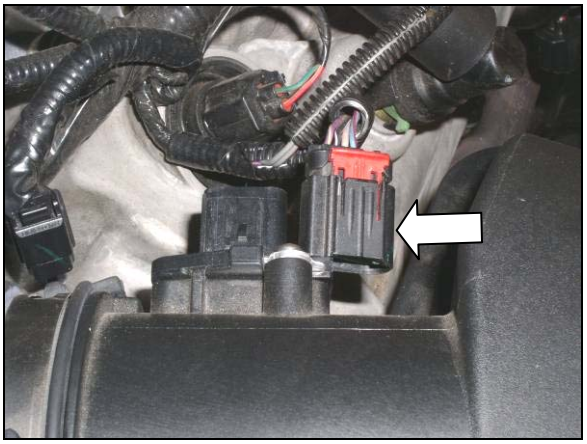

FIGURE 36



19. Unplug the MAF sensor wiring harness. The MAF sensor is located on the air box. Pull up on the tab, then the plug will disconnect. SEE FIGURE 37 & 38

FIGURE 37

FIGURE 38

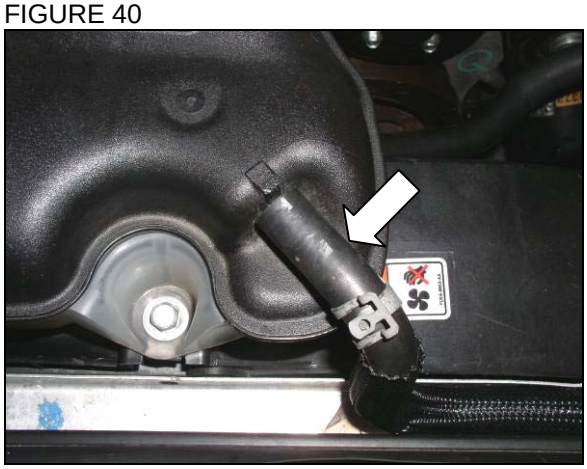


20. Loosen the hose clamp holding the intake arm onto the throttle body. SEE FIGURE 39

FIGURE 39

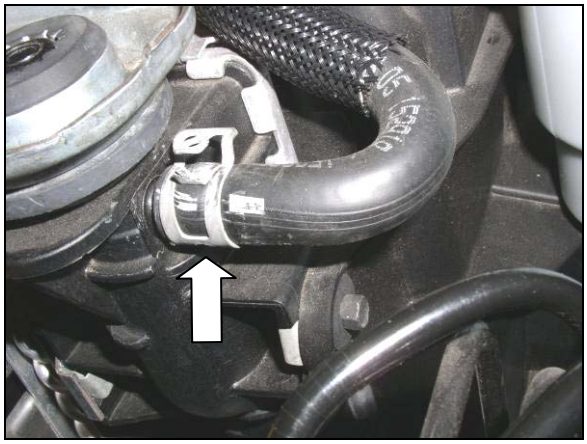
21. Remove the entire intake assembly from the engine bay. This includes the rubber intake arm, breather hose and air box. Gently tug upwards on the air box to pull its rubber grommets free of the engine bay.
22. Unclamp and remove the overflow hose from the coolant reservoir. The coolant reservoir is located on the passenger side and attached to the radiator support. SEE FIGURE 40

FIGURE 40



23. Unclamp and remove the overflow hose and from the upper driver side of the radiator. Set the hose and clamps aside for later use. SEE FIGURE 41

FIGURE 41



24. Disconnect the lower reservoir coolant feed hose from the thermostat housing. The thermostat housing is located below the power steering fluid reservoir on the driver side of the engine bay. SEE FIGURE 42

FIGURE 42

25. Using an 8 mm socket remove the 2 bolts holding the coolant reservoir in place. Save the hardware for use in later steps. SEE FIGURE 43

FIGURE 43

26. Remove the coolant reservoir and lower feed hose from the engine bay. SEE FIGURE 44

FIGURE 44

27. Remove the metal clips from the coolant reservoir bolt holes. Set aside for later use. SEE FIGURE 45 & 46

FIGURE 45

FIGURE 46

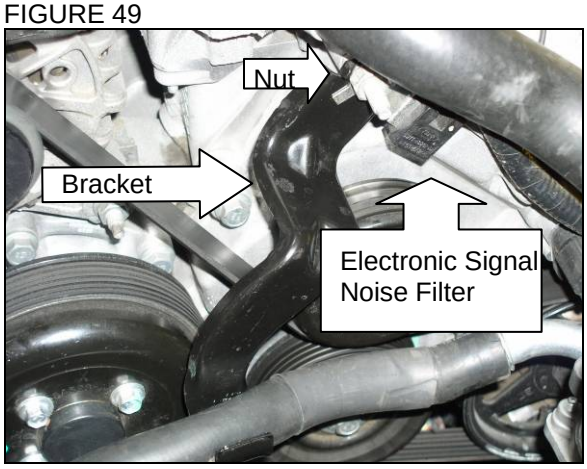
28. Cut the coolant feed hose approximately 7 1/4" below the bottom of the coolant reservoir. Set the coolant reservoir, with hose fragment still attached, aside for later use. SEE FIGURE 47 & 48

FIGURE 47

FIGURE 48

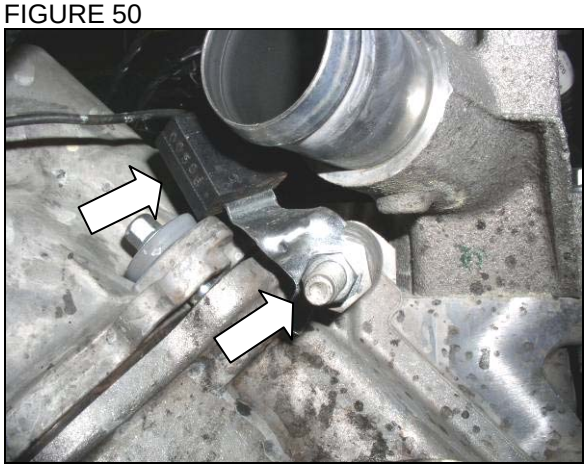
29. Locate the coolant line bracket and electronic signal noise filter just below the coolant inlet on the passenger side of the engine. Using a 15 mm socket remove the nut securing the coolant line bracket and the electronic signal noise filter. SEE FIGURE 49

FIGURE 49




30. Reinstall the electronic signal noise filter on the stud below the coolant inlet on the passenger side of the motor. Install with the Ford label facing away. Carefully bend the device away from the coolant inlet. Secure with the factory nut. SEE FIGURE 50

FIGURE 50



31. The A/C lines need to be **carefully** bent into new positions as shown in the following pictures. Bend the lines so that they run close to the radiator fan shroud and the passenger side frame. SEE FIGURE 51-54

FIGURE 51

FIGURE 52

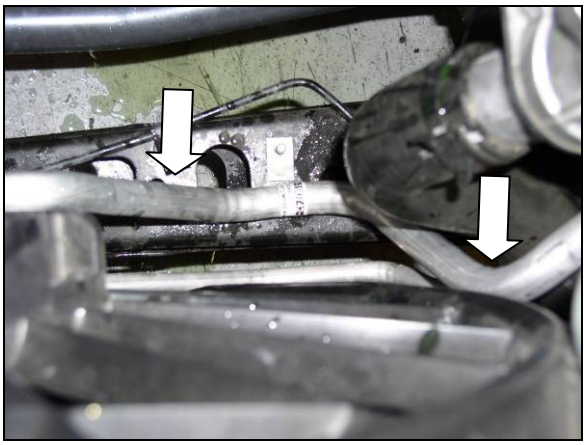


FIGURE 53

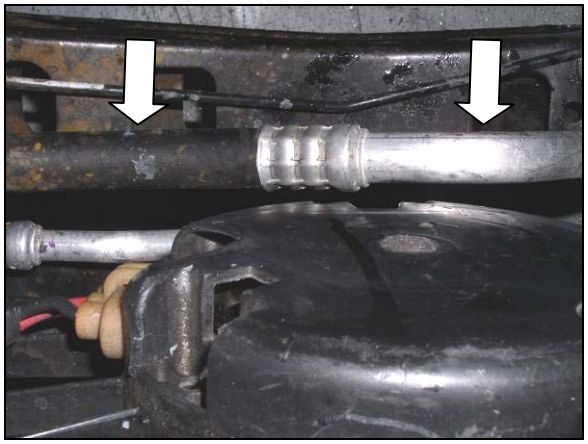
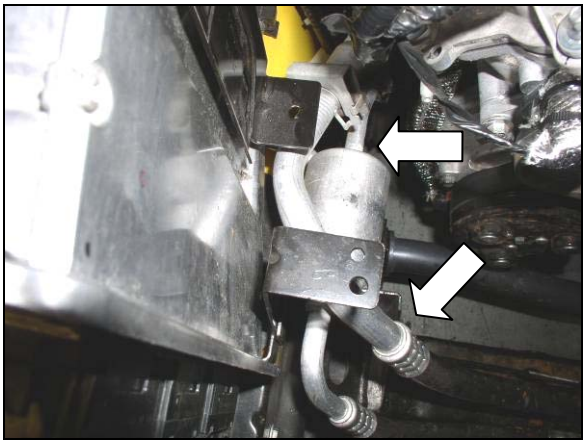


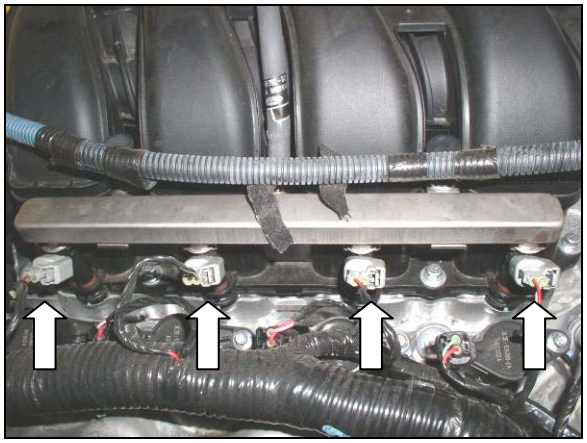
FIGURE 54



**INJECTOR INSTALLATION**

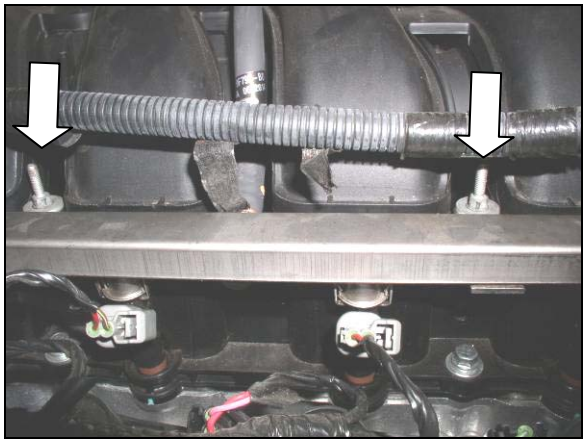
1. Unplug all 4 injectors on the passenger side of the engine. Push the plastic tab on the side of the plug in order to disconnect it. SEE FIGURE 55

FIGURE 55



2. Pull the plastic wiring harness support brackets off the studs securing the fuel rail. Using a deep 8 mm socket, remove the 2 bolts securing the fuel rail. SEE FIGURE 56

FIGURE 56

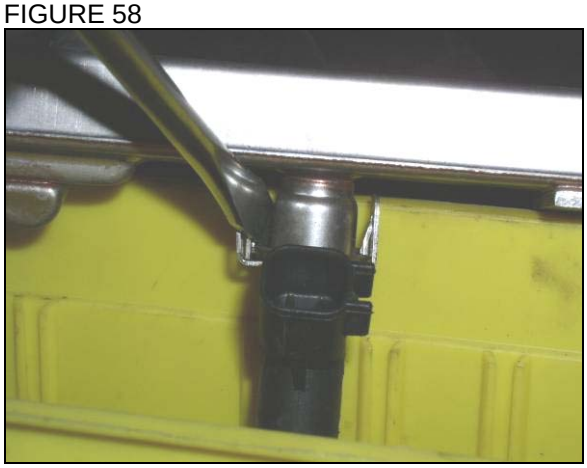


3. Find a container to hold fuel. Pull the fuel rail with injectors away from the engine. Hold them over the container. **NOTE: Fuel may squirt out of the engine as the injectors are removed.** SEE FIGURE 57

FIGURE 57

4. Using a flathead screw driver, pop both sides of the metal injector clip off of the metal retainer on the fuel fail. The injector will separate from the fuel rail along with the metal clip. Drain any fuel out of the rail and into the container. SEE FIGURE 58

FIGURE 58



5. Repeat the last step with the injector at the opposite end of the fuel rail and remove the final 2 injectors from the rail. SEE FIGURE 59

FIGURE 59

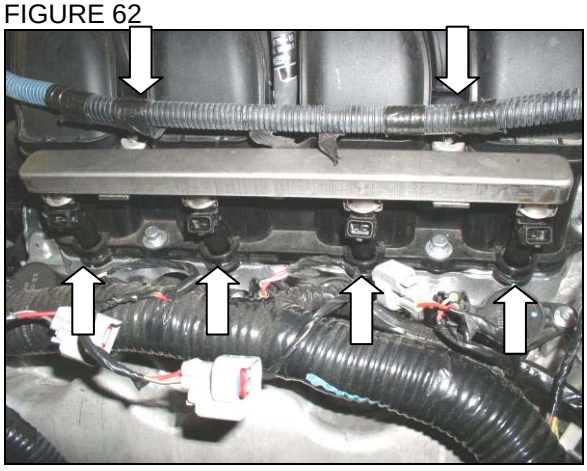
6. Remove the metal clips from the stock injectors. Place them on the new injectors (P/N 31022) as pictured. SEE FIGURE 60 & 61

FIGURE 60

FIGURE 61

7. Lubricate the o-rings on the new injectors using motor oil or similar lubricant. Install the new injectors onto the fuel rail. Be sure that the plugs will face away from the engine. Seat the injectors into the cylinder head. Be sure they are properly seated in order to avoid any leaks. Re-secure the fuel rail with the original nuts. SEE FIGURE 62

FIGURE 62



8. Attach the included injector plug adaptors (P/N 31119) onto the injector plugs. Plug in all the injectors. SEE FIGURE 63

FIGURE 63

9. Before installing the injectors on the driver side of the engine install a plastic t-fitting (P/N 31141) into the vacuum line. Cut the vacuum hose approximately 9.5 inches away from the fuel pressure/MAP sensor. The MAP sensor is located on top of the fuel rail. Install the t-fitting between the 2 hose sections. SEE FIGURE 64 & 65

FIGURE 64

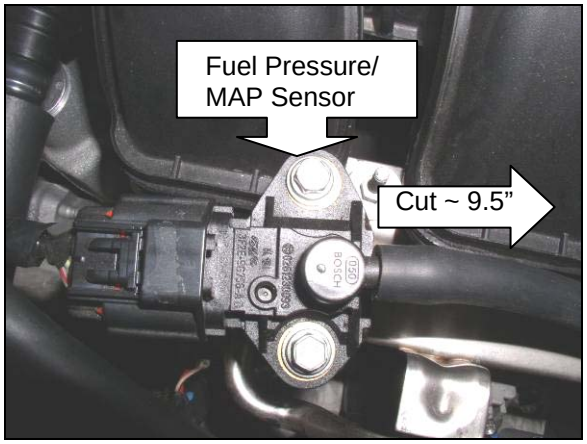
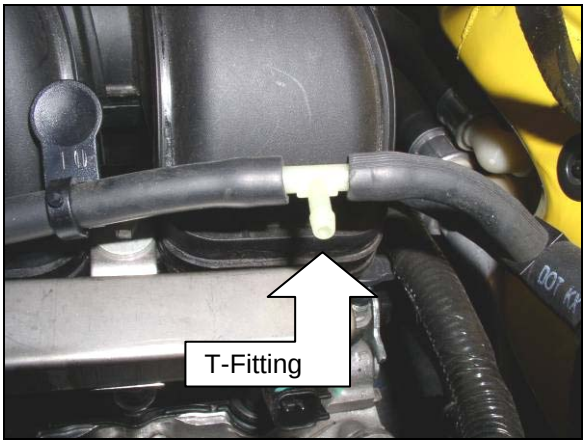



FIGURE 65



10. Repeat the injector install steps 1 - 8 on the driver's side of the engine. SEE FIGURE 66 & 67

FIGURE 66

FIGURE 67

## INTERCOOLER INSTALLATION

1. Using a 13 mm deep socket remove the 4 inner, (2 passenger side, 2 diver side) bolts from the front bumper support. SEE FIGURE 68 & 69

FIGURE 68

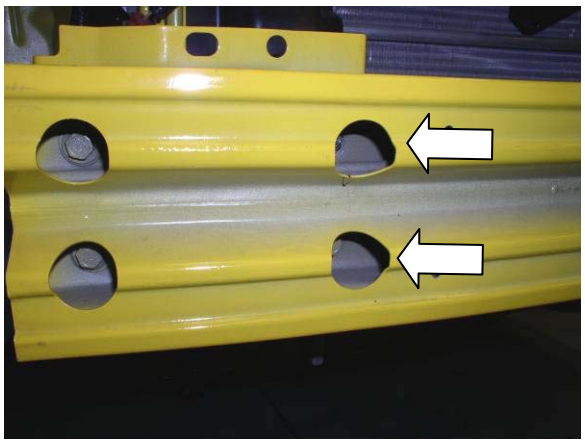
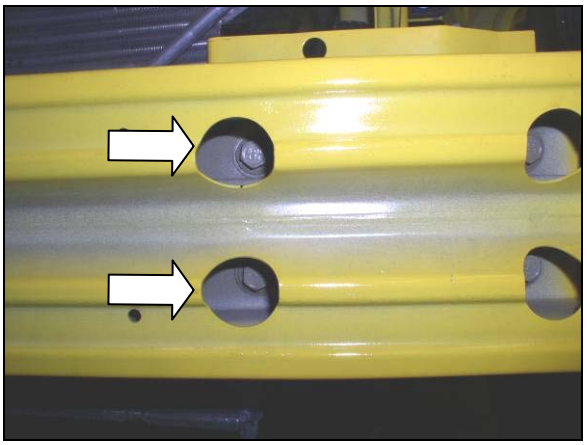


FIGURE 69



2. Install the 4 included M8 – 1.25 x 30 mm long bolts (P/N 31076) with 4 M8 flat washers (P/N 30589) into the now empty holes in the bumper support. SEE FIGURE 70 & 71

FIGURE 70

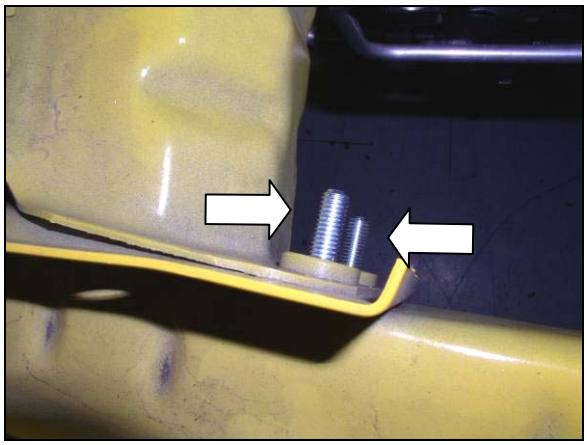
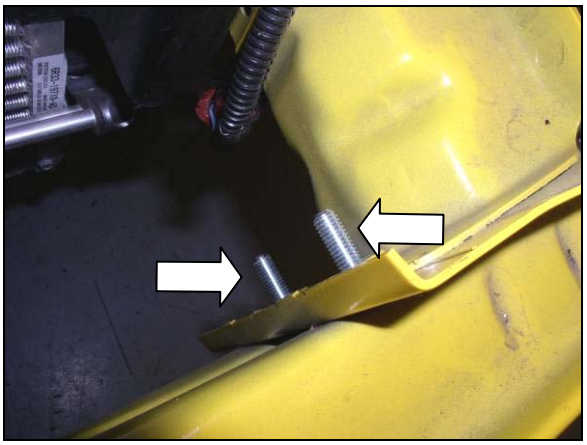


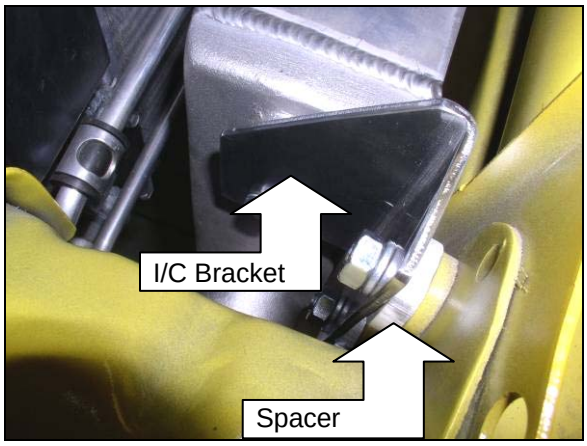
FIGURE 71



3. Place one of the included 0.25 inch thick spacers (P/N 21704) on each of the 2 newly installed bolts on the passenger side of the bumper support.

4. Place the passenger side intercooler bracket (P/N 21681) on the bolts with the spacers. Secure with 2 M8 – 1.25 nuts (P/N 30653) and 2 M8 lock washers (P/N 30593). SEE FIGURE 72

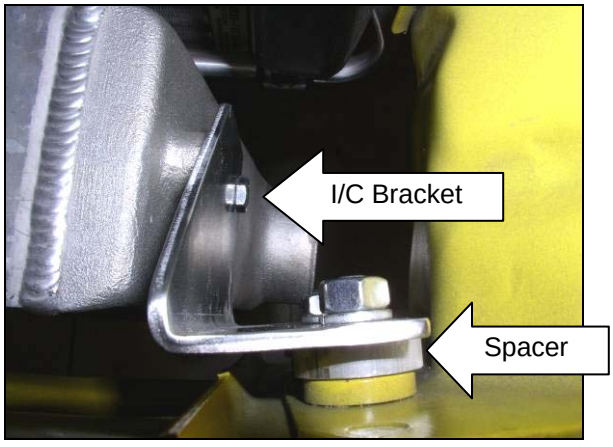
FIGURE 72




5. Place one of the included 0.25 inch thick spacers (P/N 21704) on each of the 2 newly installed bolts on the driver side of the bumper support.

6. Place the driver side intercooler bracket (P/N 21680) on the bolts with the spacers. Secure with 2 M8 – 1.25 nuts (P/N 30653) and M8 lock washers (P/N 30593). SEE FIGURE 73

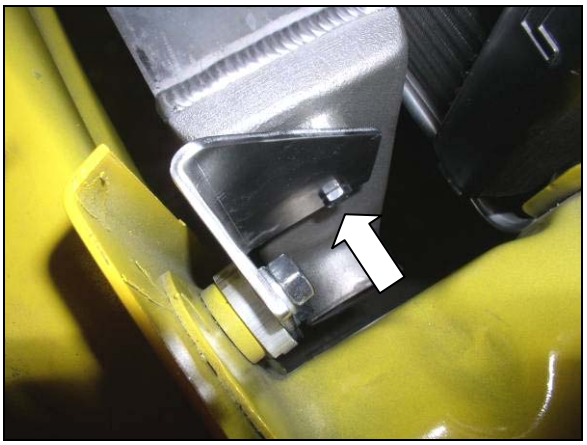
FIGURE 73




7. Install the intercooler (P/N 5-312) between the newly installed intercooler brackets. Secure to the brackets using 2 1/4 – 20 x 1/2" bolts (P/N 30566) and 1/4" lock washers (P/N 30596). Tighten down using an 11 mm or 7/16" wrench. SEE FIGURE 74 & 75

FIGURE 74

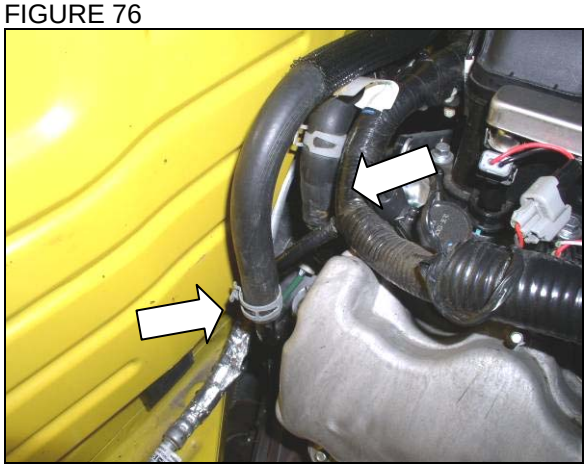
FIGURE 75



## WATER LINE INSTALLATION

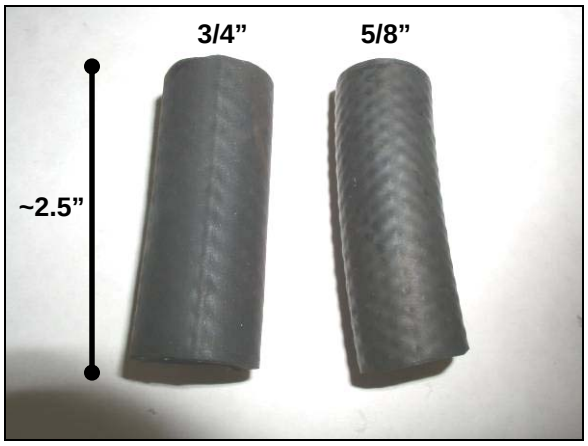
1. Locate the two heater hoses to the side of the stock battery location. Disconnect both the 5/8" diameter heater hose and the 3/4" diameter heater hose at their hard line connections. SEE FIGURE 76

FIGURE 76



2. Cut a piece of the included 5/8" diameter rubber hose (P/N 30827) to a length of 2.5". Also cut a piece of the included 3/4" diameter rubber hose (P/N 31027) to a length of 2.5". SEE FIGURE 77

FIGURE 77



3. Slide one end of the 2.5” long 5/8” hose onto the included 5/8” barbed t-fitting (P/N 21651) use a hose clamp (P/N 30817) to secure.

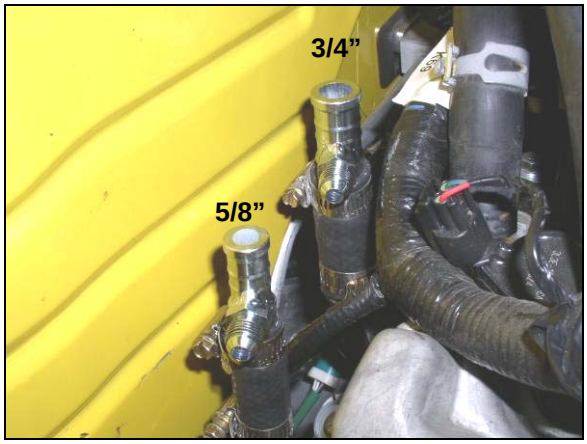
4. Slide one end of the 2.5” long 3/4” hose onto the included 3/4” barbed t-fitting (P/N 21652) use a hose clamp (P/N 30817) to secure. SEE FIGURE 78

FIGURE 78

5. Install the 5/8” fitting and hose assembly onto the 5/8” barbed hard line in the engine bay. Direct the threaded portion of the t-fitting towards the passenger side. Secure with a hose clamp (P/N 30817). SEE FIGURE 79

6. Install the 3/4” fitting and hose assembly onto the 3/4” barbed hard line in the engine bay. Direct the threaded portion of the t-fitting towards the passenger side. Secure with a hose clamp (P/N 30817). SEE FIGURE 79

FIGURE 79




7. Install the heater hoses onto the ends of the appropriate t-fittings. The 5/8” hose goes onto the 5/8” fitting and the 3/4” hose goes onto the 3/4” fitting. Secure with the factory clamps. SEE FIGURE 80

FIGURE 80

8. Using a 1/8” drill bit drill a hole in the oil pan. Locate the hole on the driver side of the pan, approximately 3/4" in from the front of the pan and 1.174” up from the bottom. As the hole is drilled oil will pour out of the hole, pushing out the metal shavings. The drill bit may also be coated with grease in order to catch metal chips. SEE FIGURE 81 & 82

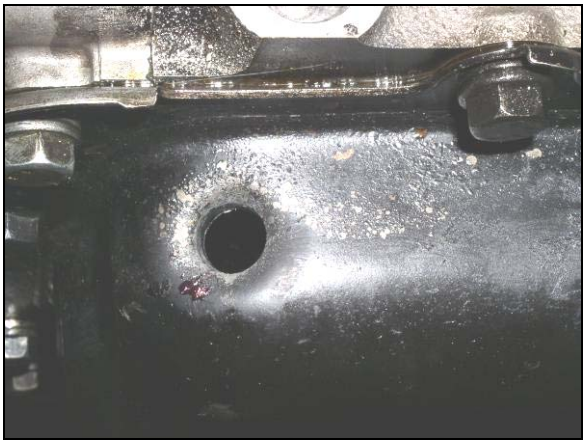
FIGURE 81

FIGURE 82

9. Using a hammer and the included tapered center punch tool (P/N 21273) expand the hold drilled into the oil pan to 0.5781”. **NOTE: Do not bottom out the center punch tool. The hole could potentially become too large to properly tap.** SEE FIGURE 83 & 84

FIGURE 83

FIGURE 84



10. Liberally grease the included tap (P/N 30809). Use it to tap the hole in the oil pan. The tap is tapered so check the hole with the included 3/8 NPT x 5/8" barbed fitting (P/N 30133) before using more than half the threads on tap. SEE FIGURE 85

FIGURE 85

11. Using Teflon tape, or other thread sealant, coat the threads of the 3/8 NPT x 5/8" barbed fitting. Install it into the oil pan. SEE FIGURE 86 & 87

FIGURE 86

FIGURE 87

12. Cut a piece of 5/8" hose (P/N 30827) to a length of 32". Install the hose on the end of the barbed fitting installed in the oil pan. Secure with a hose clamp (P/N 30817). Direct the free end of the hose up to the top of the engine bay by the radiator fan shroud. SEE FIGURE 88

FIGURE 88

13. Drain the rest of the oil from the engine.

14. Locate the oil pressure sensor on the oil filter housing. The oil filter housing is located near the bottom of the engine block on the driver side. Unplug the wiring harness from the sensor. Using a 13/16” deep socket remove the oil pressure sensor. SEE FIGURE 89-91

FIGURE 89

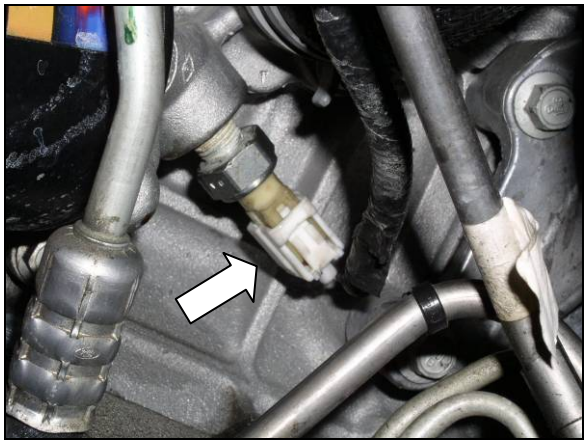


FIGURE 90

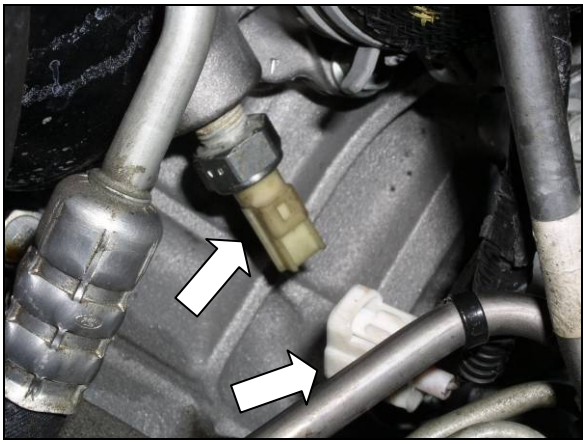
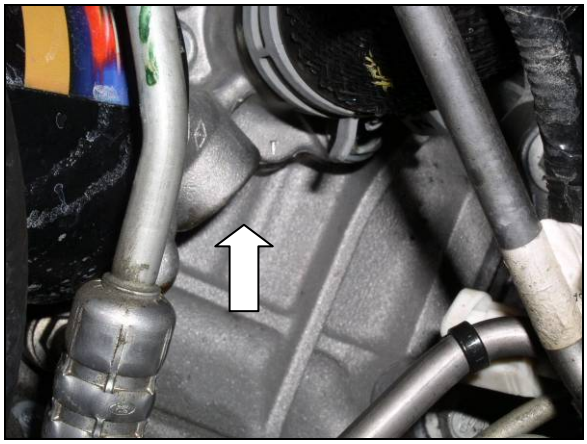
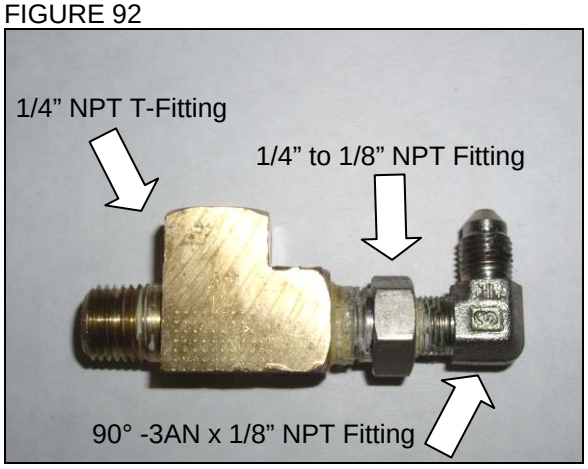


FIGURE 91



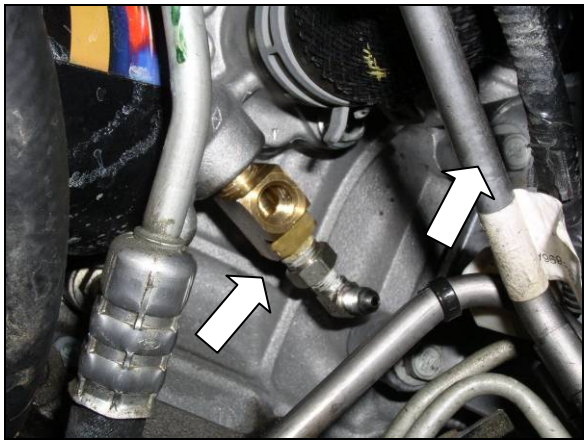
15. Make a fitting assembly out of a 1/4" NPT t-fitting (P/N 30975), 1/4" NPT to 1/8” NPT adaptor fitting (P/N 30976) & a 90° -4AN x 1/8” NPT fitting (P/N 30554). Coat the threads of the 1/4” to 1/8” adaptor fitting with Teflon tape or other thread sealant. Insert it into the 1/4” NPT t-fitting in the hole opposite the male threaded portion. Coat the 1/8” NPT threads of the 90° fitting with Teflon tape or other thread sealant. Insert it into the end of the 1/4” NPT adaptor fitting just installed in the t-fitting. SEE FIGURE 92

FIGURE 92




16. Coat the threads of the 1/4” NPT t-fitting with Teflon tape or other thread sealant. Install the fitting assembly into the oil pressure port on the oil filter housing. This is the location from which the oil pressure sensor was removed. SEE FIGURE 93

FIGURE 93



17. Coat the threads of the oil pressure sensor with Teflon tape or other thread sealant. Install the oil pressure sensor into the open location on the 1/4” NPT t-fitting now located in the oil filter housing. SEE FIGURE 94 & 95

FIGURE 94

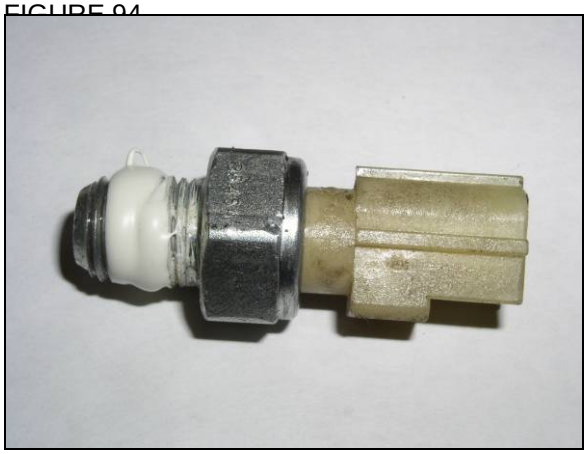
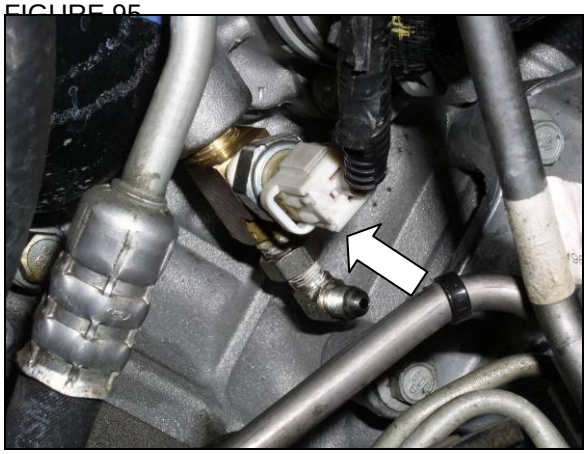
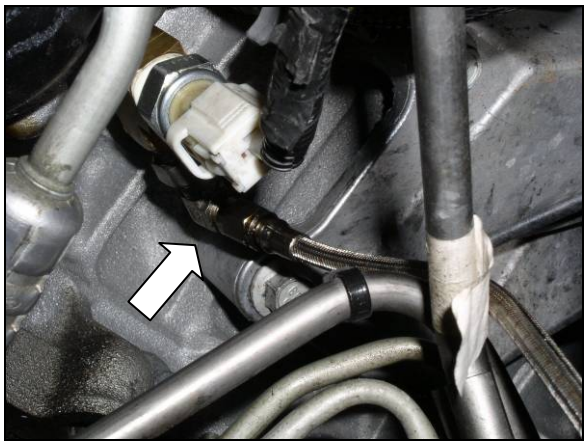


FIGURE 95



18. Install the -4AN x 36” long oil feed line (P/N 10724) onto the 90° end of the fitting assembly installed into the oil filter housing. Route the free end of the line up to the top of the engine bay behind the power steering pump. SEE FIGURE 96

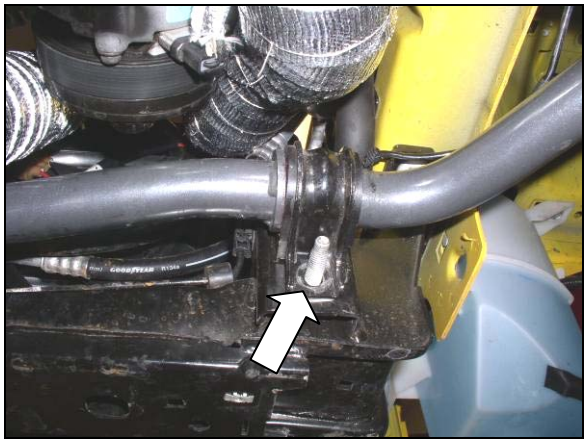
FIGURE 96



## EXHAUST PIPE INSTALLATION

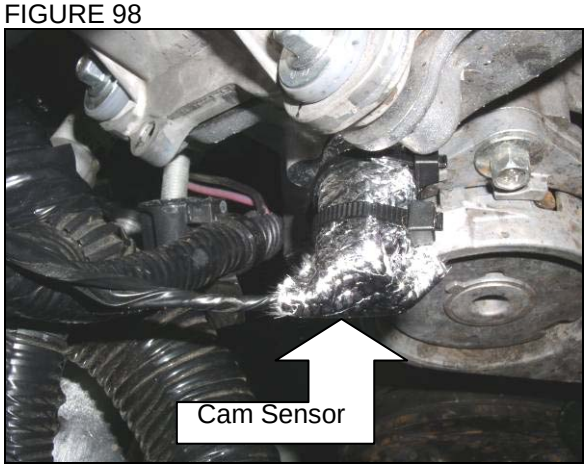
1. Using a 15 mm socket remove the 4 lock nuts securing the front sway bar to the subframe. Let the bar hang down from the endlinks. SEE FIGURE 97

FIGURE 97



2. Using a piece of heat wrap (P/N 31007) and a zip tie (P/N 2-43620). Secure heat wrap around the cam sensor. The cam sensor is located on the front of the engine, behind the radiator fan shroud, on the passenger side. SEE FIGURE 98

FIGURE 98




3. Wrap the crank sensor wiring harness and the A/C compressor wiring harness with heat wrap (P/N 31007). Route the wiring harness around the A/C compressor. Secure it with a couple zip ties (P/N 2-43620) or safey wire (P/N 31093) to the A/C line. The A/C compressor is located just above the steering rack on the passenger side. SEE FIGURE 99 & 100

FIGURE 99

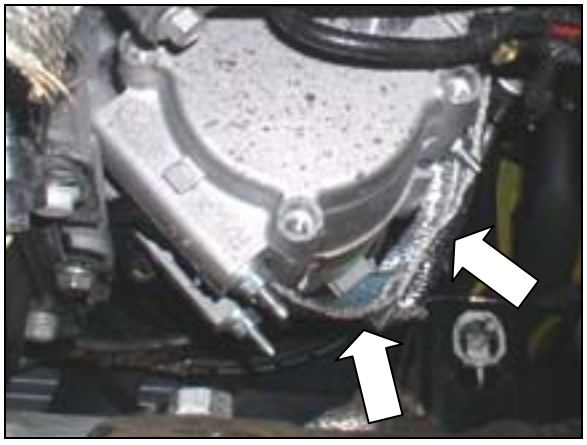
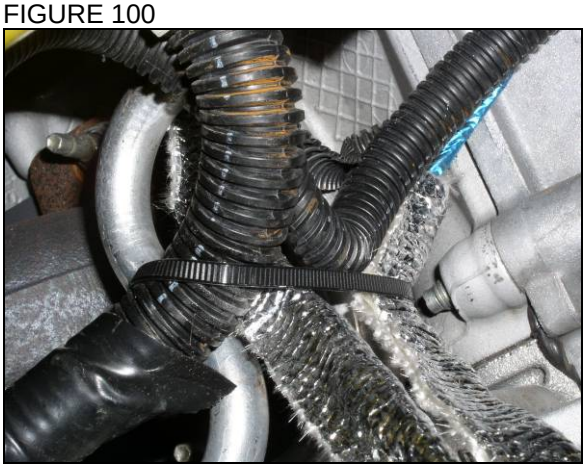
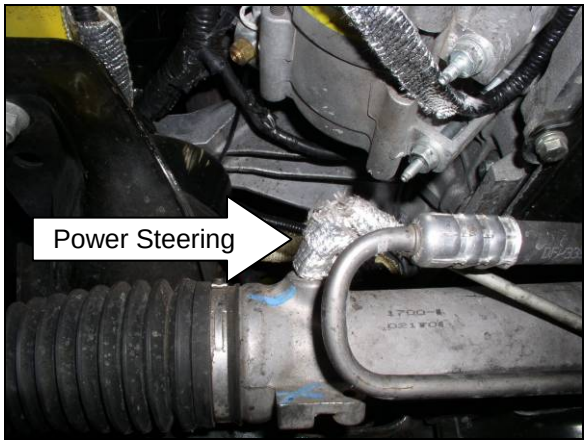


FIGURE 100



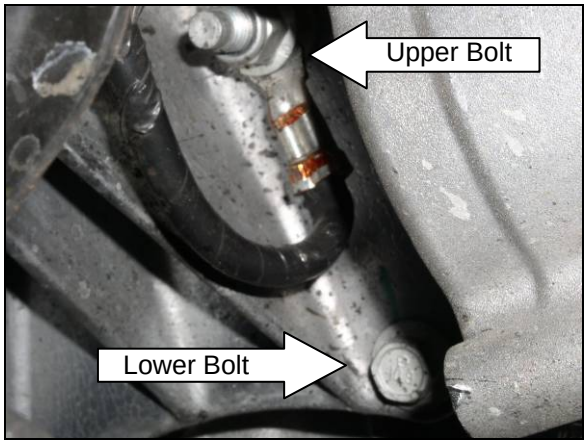
4. Wrap a portion of the power steering line with heat wrap (P/N 31007). Wrap a two inch portion of the line as it comes out of the steering rack on the passenger side. Secure using safety wire (P/N 31093). SEE FIGURE 101

FIGURE 101



5. Relocate the ground wire from the lower motor mount bolt to the upper bolt. The ground wire is located on the passenger side of the engine. SEE 102

FIGURE 102




6. Wrap the oil level sensor wiring harness with heat wrap (P/N 31007). The oil level sensor is located on the passenger side of the engine oil pan. Route the oil level sensor harness and the starter wiring harness above the engine mount. Using a zip tie (P/N 2-43620) secure the starter harness to the oil level harness. SEE FIGURE 103 & 104

FIGURE 103

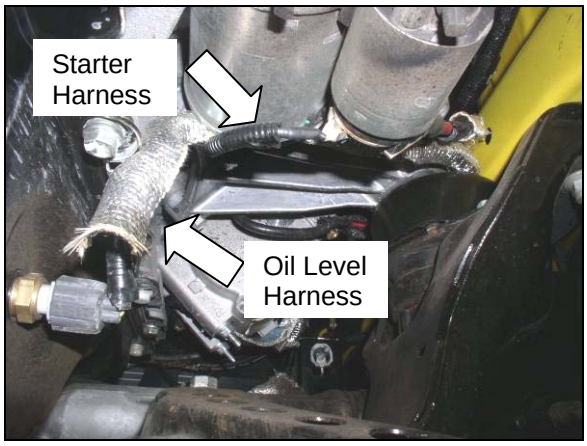
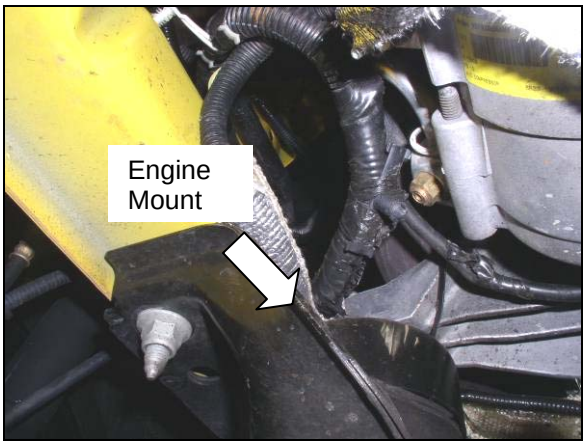



FIGURE 104




7. Using a 15 mm socket remove the 4 lock nuts holding the front lower subframe brace. The brace is located just below the transmission bell housing. There are 2 nuts at each end of the brace. SEE FIGURE 105 & 106

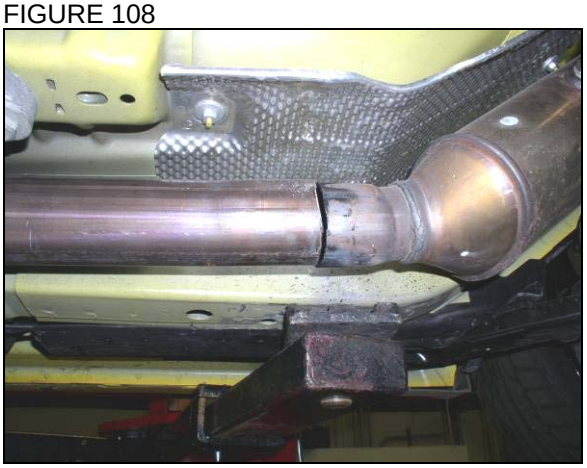
FIGURE 105

FIGURE 106

8. Cut the stock exhaust 2.5” downstream from both of the catalytic converters. Make the measurement starting at the weld bead on the catalytic converters. SEE FIGURE 107 & 108

FIGURE 107

FIGURE 108

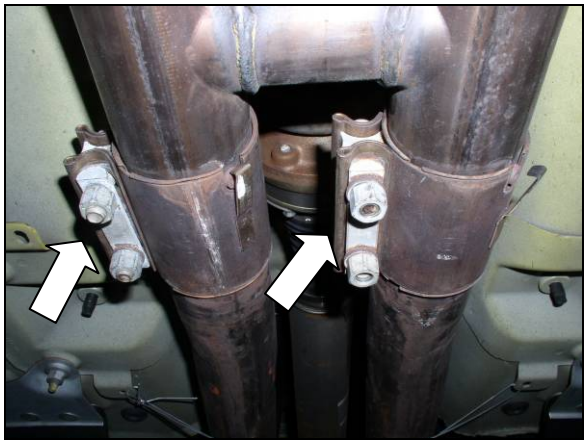


9. Support the hanging exhaust pipes with coat hanger wire, safety wire or welding rod. SEE FIGURE 109

FIGURE 109

10. Using a 15 mm socket loosen the 4 bolts for the exhaust coupling clamps. SEE FIGURE 110

FIGURE 110

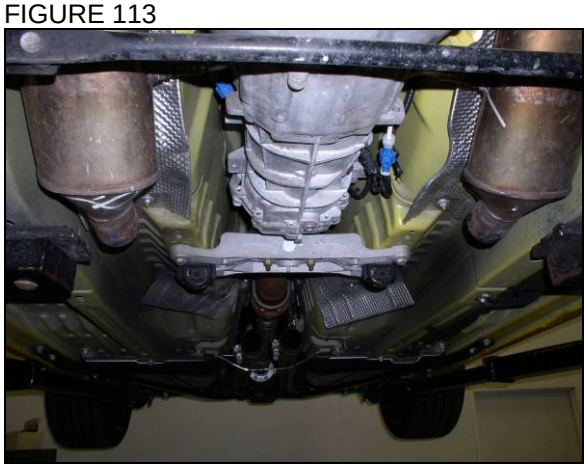


11. Pull back on the metal clips on the sides of the exhaust couplers in order for them to slide. Slide the couplers downstream on the exhaust pipes to free the crossover section of the exhaust. Remove the crossover pipe. Leave the clamps for later use. SEE FIGURE 111-113

FIGURE 111

FIGURE 112

FIGURE 113



12. Using a 10 mm socket remove the two upper radiator brackets from the radiator support. SEE FIGURE 14 & 115

FIGURE 114

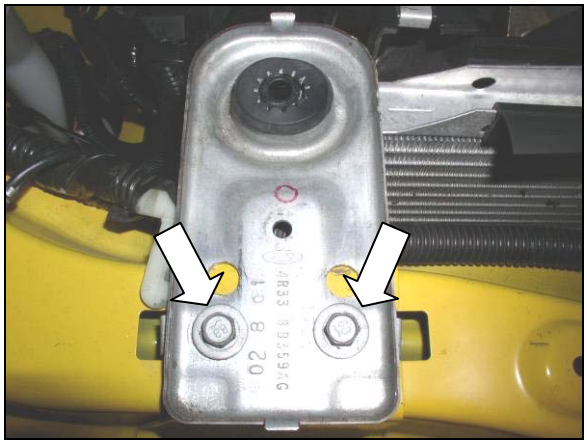
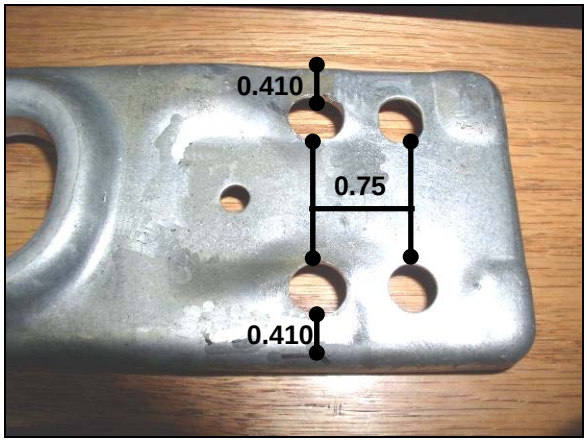


FIGURE 115

13. Using a 7/16” drill bit to drill 2 new holes in both radiator brackets. Locate the new holes as shown in the following figure. SEE FIGURE 116

FIGURE 116




14. Reinstall the upper radiator support brackets. Use the new holes to secure the brackets to the radiator support. SEE FIGURE 117 & 118

FIGURE 117

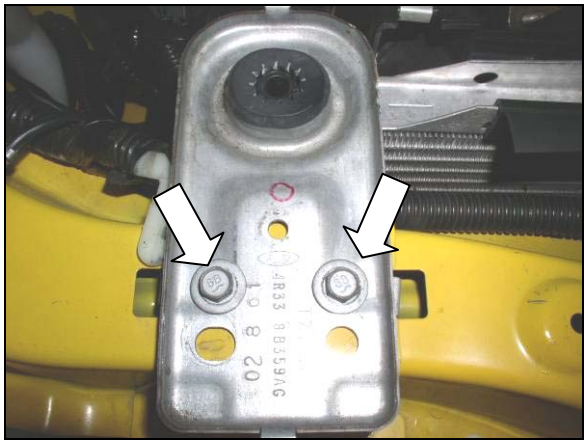
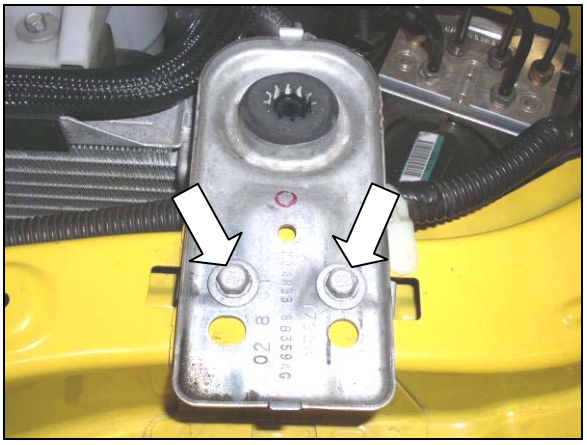


FIGURE 118



15. Place the factory plastic radiator shroud back in its original position on the upper radiator support. Using a permanent marker mark the locations for the new required holes on the radiator brackets. Using a 1/4" drill bit carefully drill a new hole in each bracket for the radiator shroud plastic fasteners. Set aside the plastic radiator shroud for reinstallation in later steps. SEE FIGURE 119 & 120

FIGURE 119

FIGURE 120

16. Move the factory exhaust band clamps onto the ends of the catalytic converters. SEE FIGURE 121 & 122

FIGURE 121

FIGURE 122

17. Install the exhaust y-pipe (P/N 21677) on the ends of the catalytic converters. The v-band flange on the pipe extends towards the driver side when installed. If necessary to ease installation loosen one bolt on each of the catalytic converters with a 15 mm socket. SEE FIGURE 123-126

FIGURE 123

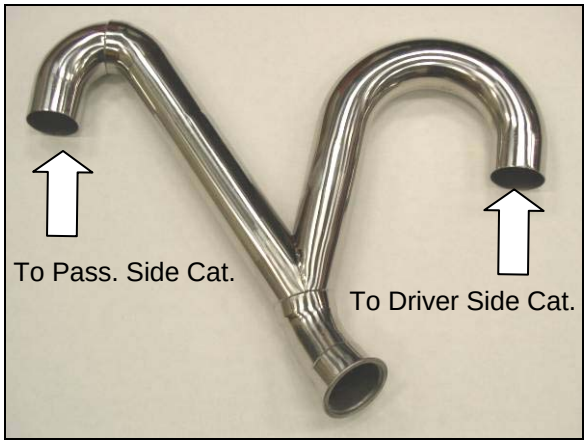



FIGURE 124

FIGURE 125

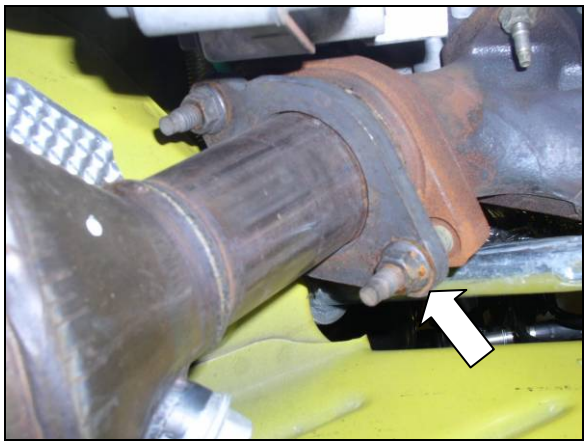
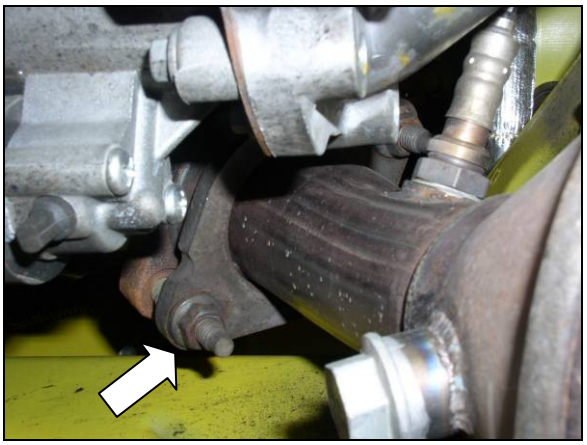
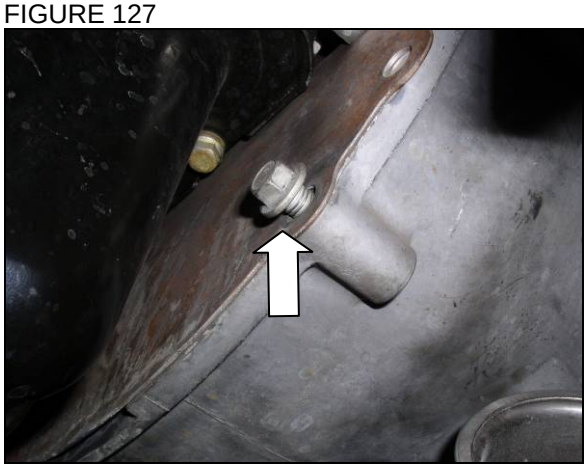


FIGURE 126



18. Using a 13 mm socket loosen the lower bolt on the front of the transmission bell housing. The bolt is located on the driver side of the bell housing. SEE FIGURE 127

FIGURE 127



19. Install exhaust pipe 2 (P/N 21678) onto the v-band flange at the end of the exhaust y-pipe. The end of exhaust pipe 2 that contains a bracket is the end that attaches to the y-pipe. Use the included 2.5" v-band clamp (P/N 30232) to loosely secure. SEE FIGURE 128 & 129

FIGURE 128

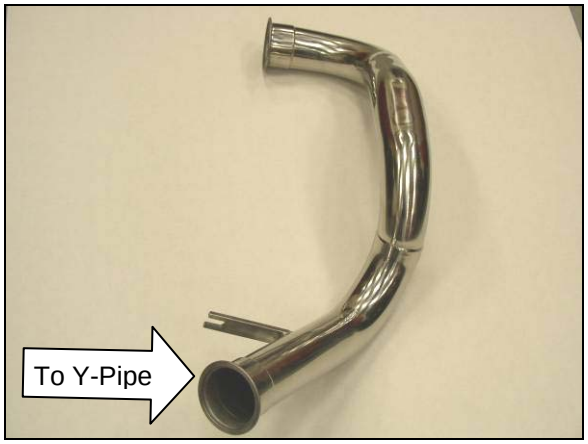
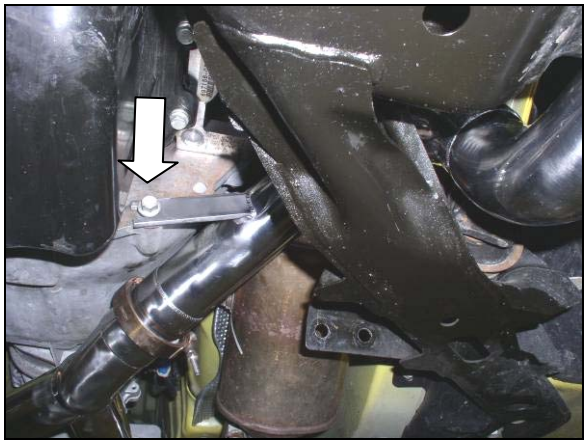



FIGURE 129

20. Set the bracket on exhaust pipe 2 underneath the loosened bolt on the front of the transmission bell housing. Loosely secure the bracket with the bolt. SEE FIGURE 130

FIGURE 130



21. Using a 13 mm socket remove 3 oil pan bolts from the bottom of the engine block. The bolts are located at the front most part of the oil pan. SEE 131 & 132

FIGURE 131

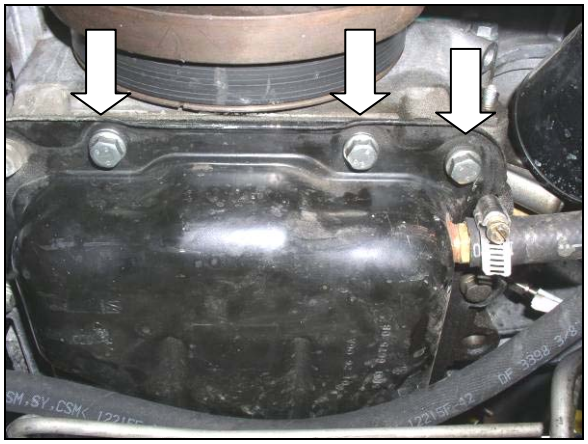


FIGURE 132

22. Install the included up-pipe bracket (P/N 21679) with the included 3 M8 – 1.25 x 40 mm bolts (P/N 30576-40) and 3 M8 flat washers (P/N 30589). Use a 12 mm socket to tighten the bolts. SEE FIGURE 133 & 134

FIGURE 133

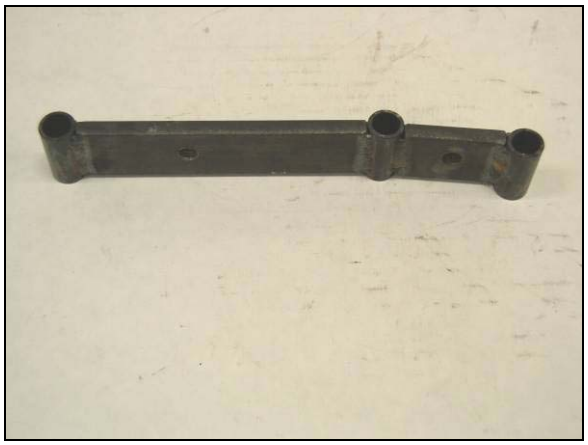


FIGURE 134

23. Install the included downpipe bracket (P/N 21671) on the two lower studs on the A/C compressor. The studs can be found at the bottom of the A/C compressor which is just above the subframe on the passenger side. Position the bracket so that it extends out towards the passenger side of the engine bay. Secure using 2 M6 nuts (P/N 30665) and Loctite threadlocker. SEE FIGURE 135 & 136

FIGURE 135

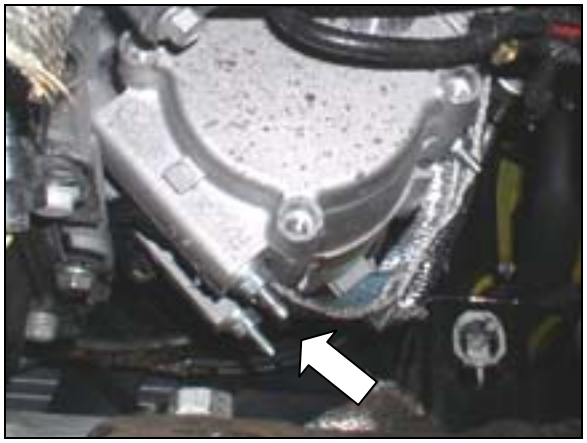
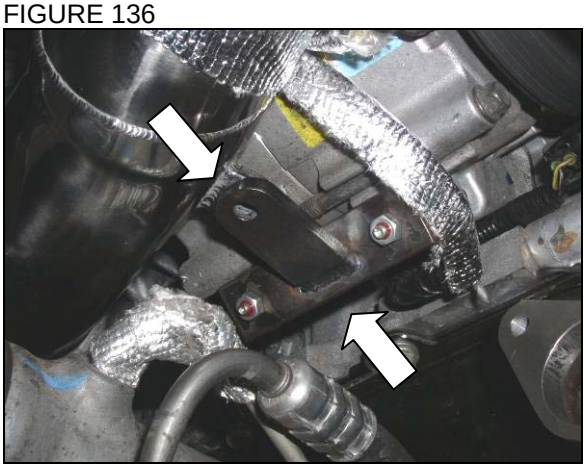


FIGURE 136



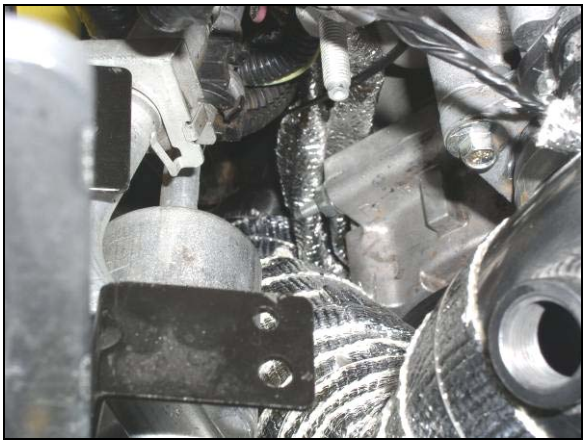
24. Wrap downpipe 1 (P/N 21666) with 2 rolls of heat wrap (P/N 31007) secure with safety wire (P/N 31093). SEE FIGURE 137

FIGURE 137

25. Set downpipe 1 in the car from the top of the engine bay. The bracket end of the pipe extends down between the A/C compressor, engine mount, and steering rack. SEE FIGURE 138 & 139

FIGURE 138

FIGURE 139



26. Wrap the exhaust up-pipe (P/N 21665) with 1 1/4 rolls of heat wrap. Wrap the straight end of the pipe with the T4 flange. Secure the heat wrap with safety wire (P/N 31093). SEE FIGURE 140

FIGURE 140

27. Install 2 M10 – 1.25 x 42 mm threaded studs (P/N 30806) into the T4 flange on the exhaust up-pipe. The studs thread into the 2 holes on the part of the flange that angles in towards the pipe. SEE FIGURE 141

28. Install the turbo support bracket (P/N 21670) onto the T4 flange of the up-pipe using 2 M10 – 1.25 x 50mm bolts (P/N 31166). The bracket sits on the pipe side of the flange. It is installed in the 2 holes on the part of the flange that angles away from the pipe. SEE FIGURE 141 & 142

FIGURE 141

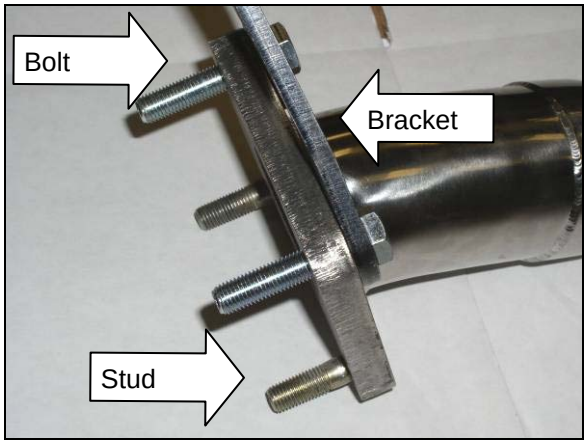
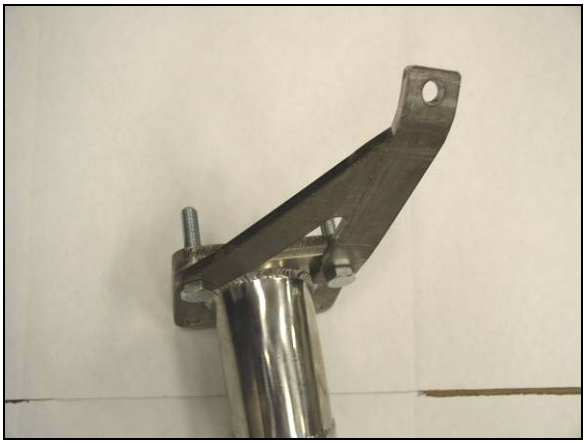



FIGURE 142



29. Insert the exhaust up-pipe through the top of the engine bay. The v-band flange mates up to the end of exhaust pipe 2 that was installed in hot pipe installation step 19. Loosely secure with a 2.5" v-band clamp (P/N 30232). Loosely secure the turbo support bracket to a stud on the engine block using the factory nut. The stud is located just below the coolant inlet; it holds the electronic signal noise filter. SEE FIGURE 143 & 144

FIGURE 143

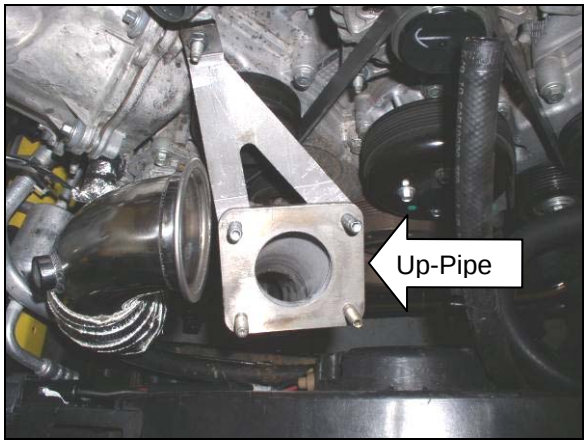
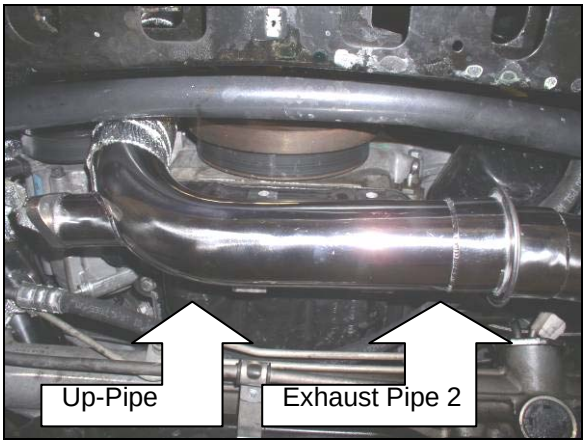


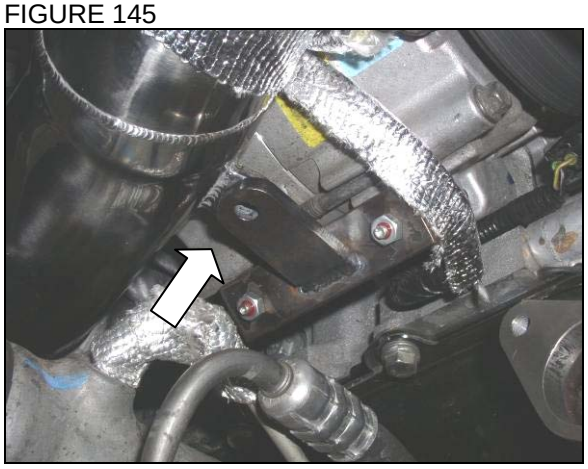

FIGURE 144




30. Place the included T4 exhaust gasket (P/N 30143) on the T4 flange on the up-pipe.

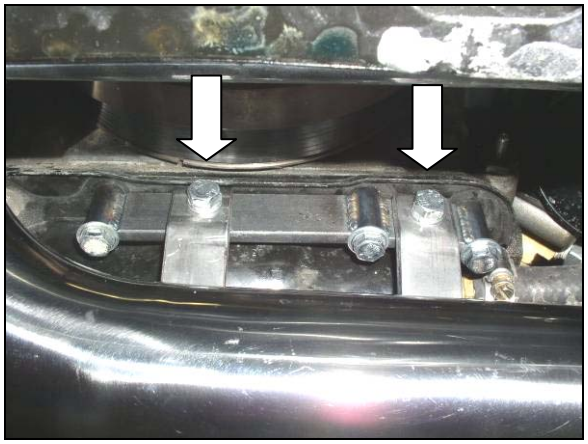
31. Using the included M8 – 1.25 x 20 mm bolt (P/N 30700) and M8 lock washer (P/N 30593) loosely secure downpipe 1 to the bracket installed on the A/C compressor. SEE FIGURE 145

FIGURE 145



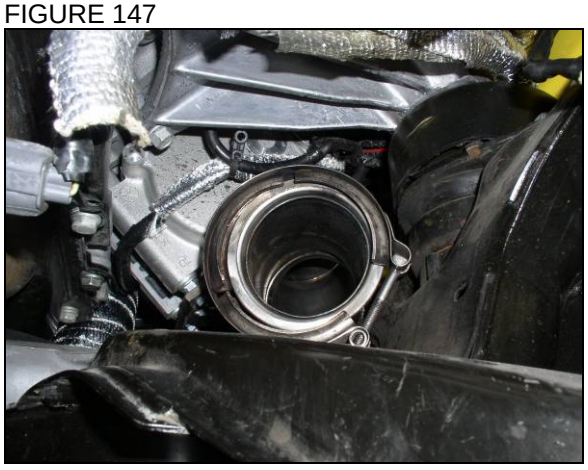
32. Before proceeding further re-secure the front sway bar by reattaching the u-brackets to the subframe with the factory nuts.
33. Using 2 of the included M8 – 1.25 x 20 mm bolts (P/N 30700) with 2 M8 lock washers (P/N 30593) secure the exhaust up-pipe to the bracket installed in hot pipe installation step 22. SEE FIGURE 146

FIGURE 146



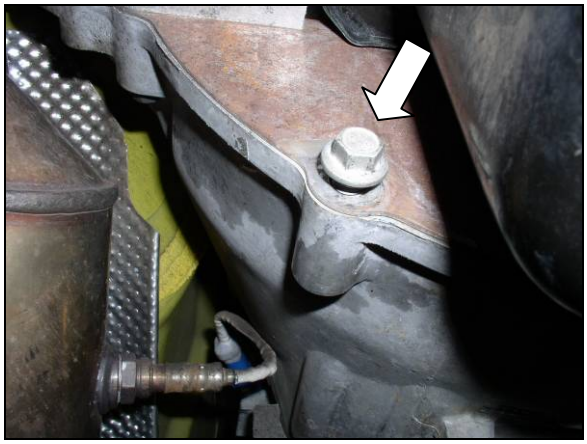
34. Place a 3.0” v-band clamp (P/N 30242) on the end of downpipe 1. SEE FIGURE 147

FIGURE 147



35. Using a 13 mm socket loosen the lower bolt on the front of the transmission bell housing. The bolt is located on the passenger side of the bell housing. SEE FIGURE 148

FIGURE 148



36. Install downpipe 2 (P/N 21667) onto the end of downpipe 1. Loosely secure with the v-band clamp. Loosely secure the pipe bracket to the transmission bell housing using the previously loosened bolt. SEE FIGURE 149 & 150

FIGURE 149

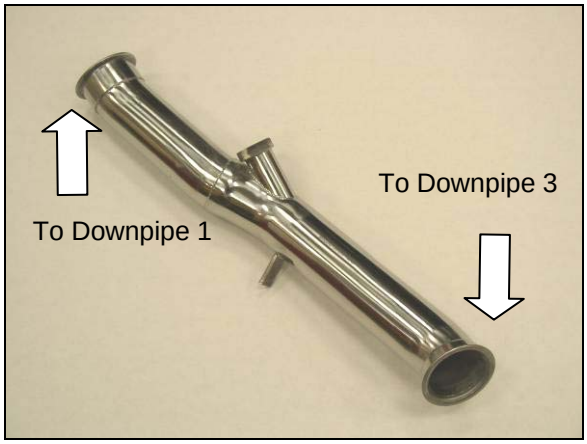
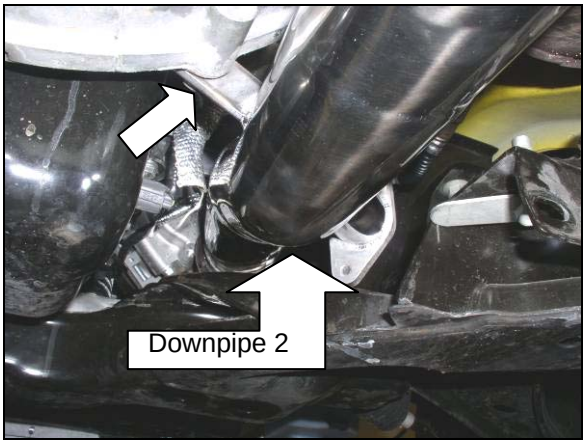
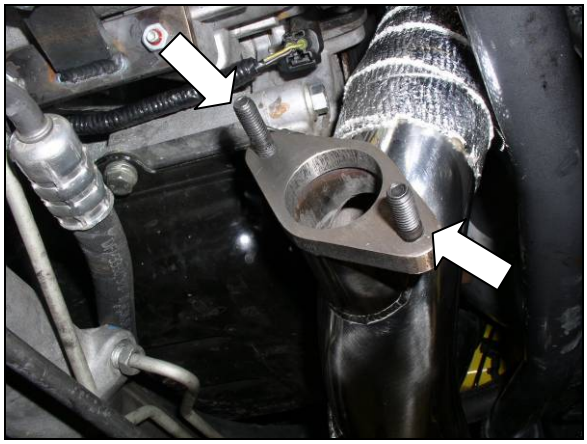



FIGURE 150



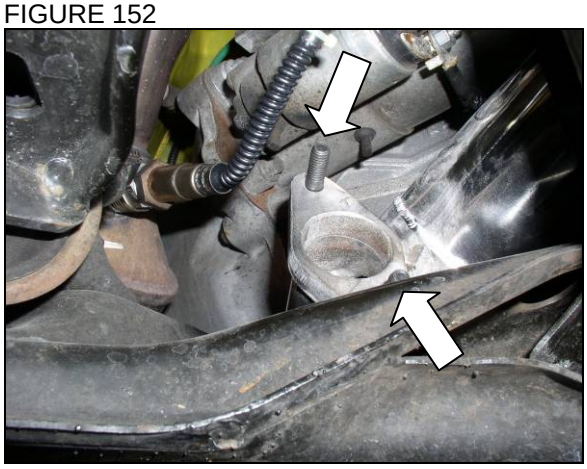

37. Install 2 M8 – 1.25 x 30 mm studs (P/N 30860) in the 2 hole flange on the exhaust up-pipe. The flange is located on the passenger side above the steering rack. SEE FIGURE 151

FIGURE 151



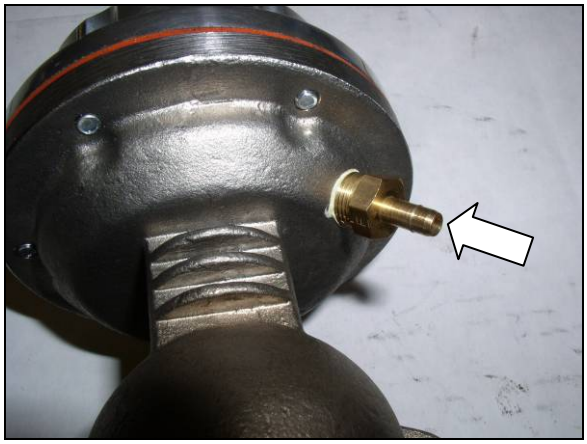
38. Install 2 M8 – 1.25 x 30 mm studs (P/N 30860) in the 2 hole flange on downpipe 2. The flange is located near the passenger side motor mount. SEE FIGURE 152

FIGURE 152



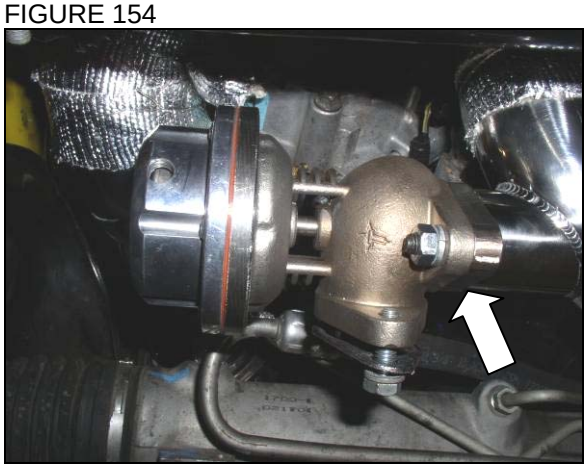
39. Wrap the threads of the included 1/8 NPT x 5/32" straight fitting (P/N 30306) with Teflon tape or other thread sealant. Install the fitting into the port in the **base** of the Evo wastegate (P/N 10781). SEE FIGURE 153

FIGURE 153



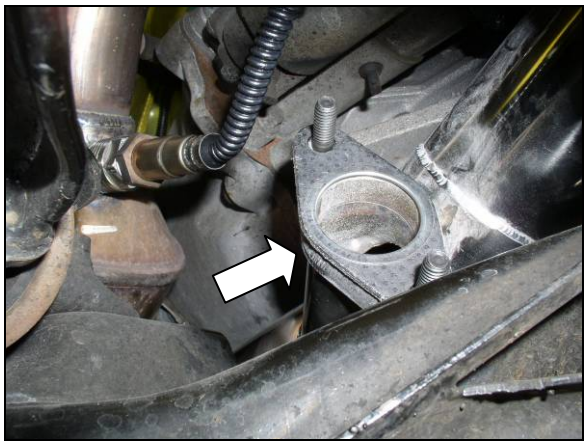
40. Mount the included Evo wastegate to the 2 hole flange on the exhaust up-pipe. Orient the wastegate outlet flange so that it points towards the floor. Secure it using 2 M8 nuts (P/N 30653) and 2 M8 lock washers (P/N 30593). SEE FIGURE 154

FIGURE 154



41. Place an exhaust gasket (P/N 20142) on the 2 bolt flange on downpipe 2. SEE FIGURE 155

FIGURE 155



42. Mate one end of the wastegate dump tube (P/N 21669) to the wastegate outlet flange with an exhaust gasket (P/N 20142) in between. Loosely secure the tube to the wastegate using 2 5/16 – 18 x 1" bolts (P/N 30570) and 2 5/16" lockwashers (P/N 30593). SEE FIGURE 156 & 157

FIGURE 156

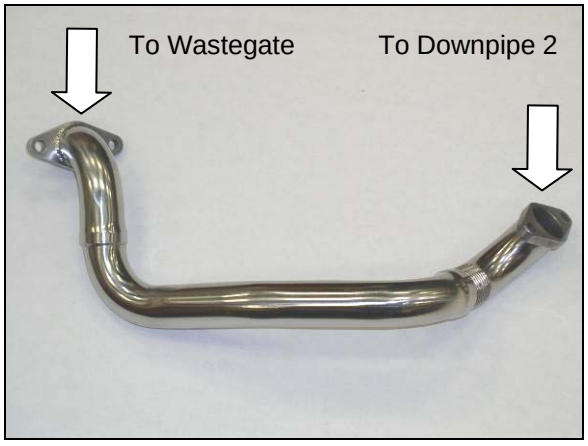
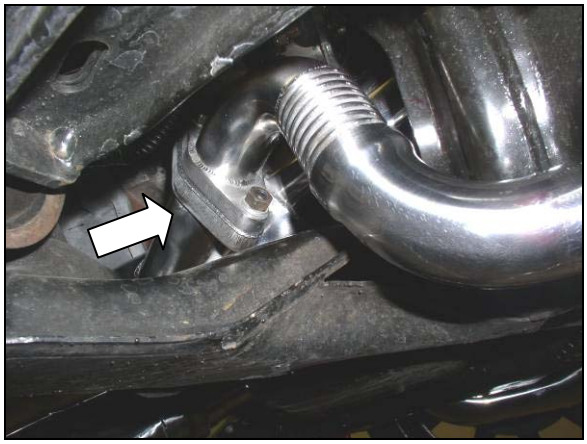



FIGURE 157

43. Loosely secure the other end of the wastegate dump tube to the 2 bolt flange on downpipe 2 using 2 M8 nuts (P/N 30653) and 2 M8 lockwashers (P/N 30593). SEE FIGURE 158

FIGURE 158



44. Once the wastegate dump tube is fully installed tighten the 4 bolts that secure it. **Note: Make sure the wastegate dump tube does not become pre-loaded in order to prevent the flex joints from cracking.**

45. Place the included 2.50" exhaust clamps (P/N 31125-250) over the ends of the stock exhaust piping. Place one clamp on each of the 2 pipes. SEE FIGURE 159

FIGURE 159

46. Install downpipe 3 (P/N 21668) between downpipe 2 and the stock exhaust piping. Direct the non-flanged end of downpipe 3 into the stock exhaust pipes before mating the v-band flange with that on the end of downpipe 2. Use a 3.0" v-band clamp (P/N 30242) to loosely secure downpipe 3 to downpipe 2. **NOTE: It may assist installation to briefly remove the exhaust y-pipe while installing downpipe 3.** SEE FIGURE 160 & 161

FIGURE 160

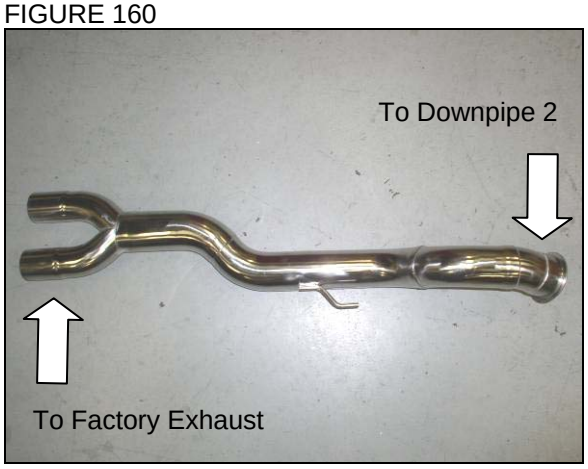
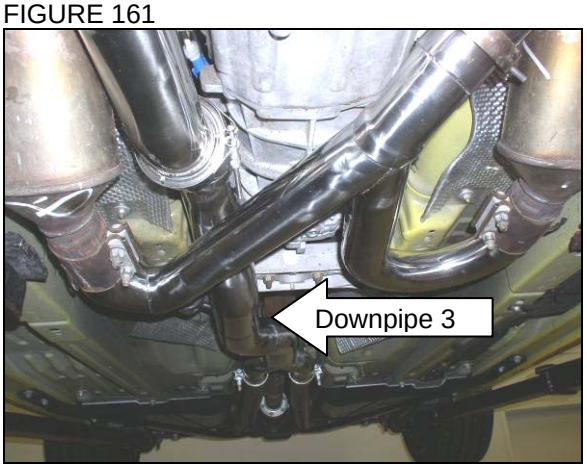
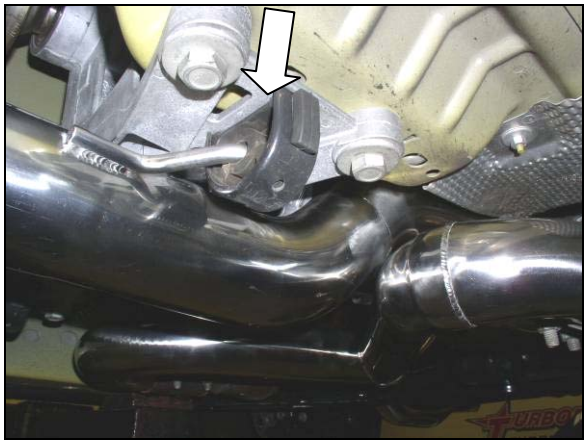



FIGURE 161




47. Insert the bracket on downpipe 3 into the rubber exhaust hanger from the stock exhaust piping. SEE FIGURE 162

FIGURE 162



48. Slide the 2.50" exhaust clamps over the joints between the stock exhaust piping and downpipe 3. Loosely secure. SEE FIGURE 163

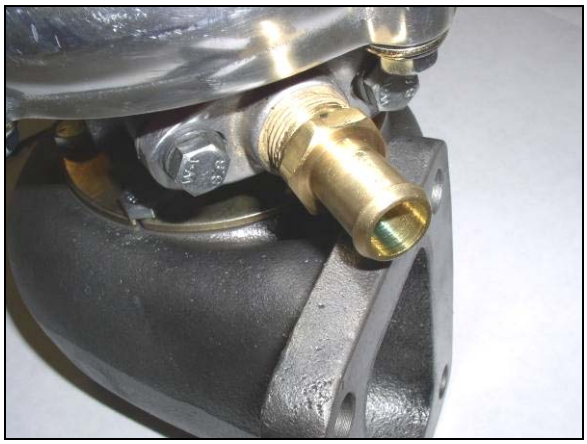
FIGURE 163

## TURBO INSTALLATION

1. Install the supplied oil drain flange (P/N 20259) to the bottom of the turbocharger center housing with the supplied oil drain gasket (P/N 30141). Secure the flange to the turbocharger using 2 of the supplied M8 – 1.25 x 20mm (P/N 30700) bolts with M8 lock washers (P/N 30593).

2. Wrap the thread of the 1/2" – 14 NPT x 5/8" hose barb brass fitting (P/N 30244) with Teflon tape or other thread sealant. Thread the fitting into the oil drain flange on the bottom of the turbo center housing. Tighten the fitting with a 7/8" wrench. SEE FIGURE 164

   FIGURE 164

3. Wrap the threads of a 1/8 NPT x 5/32 90° boost fitting (P/N 30307). Insert the fitting in the threaded hole on the turbocharger compressor cover. SEE FIGURE 165

   FIGURE 165

4. Using 2 M16 banjo bolts (P/N 31155) attach the 2 included 52" water lines (P/N 21657-52) to the turbocharger center housing. When installing the lines place one M16 copper crush washer (P/N 31156) on the banjo bolt before placing it in through the water line. Place another M16 copper crush washer on the banjo bolt, after the water line, before threading it into the center housing. Direct the ends of the water lines downwards, towards the oil drain flange. Tighten the banjo bolts using a 24 mm socket. SEE FIGURE 166

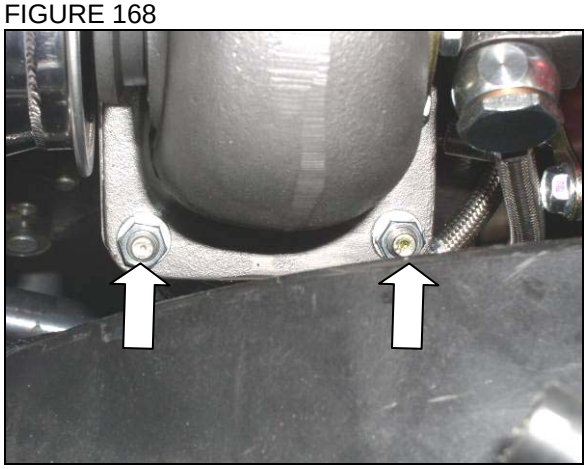
FIGURE 166

5. Insert the turbocharger (P/N 11308-BB) into the engine bay. The T4 exhaust flange on the turbocharger turbine housing mates to the T4 flange on downpipe 1. The turbine housing faces towards the passenger side of the engine bay while the compressor housing faces towards the driver side. Connect the 5/8" oil drain line to the 5/8" barbed fitting installed on the bottom of the turbocharger center housing. Secure with a hose clamp (P/N 30817). **NOTE: You may need to loosen the turbine and compressor housing cover bolts in order to clock them into the necessary positions.** SEE FIGURE 167

FIGURE 167

6. Secure the turbocharger to downpipe 1 using 4 M10 nuts (P/N 30803) and 4 M10 lock washers (P/N 30805). Tighten using a 14 mm socket. SEE FIGURE 168

FIGURE 168

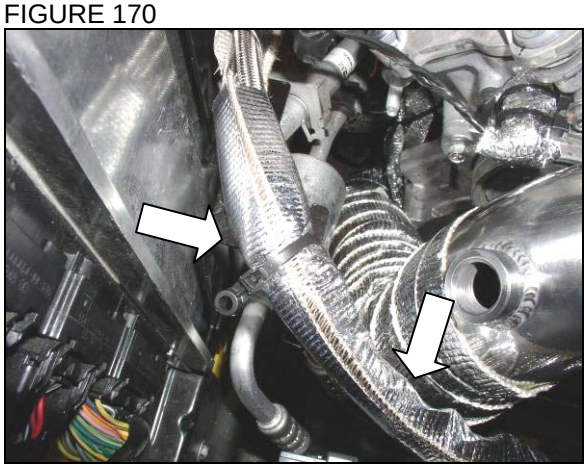


7. Check the clearance between the side of the compressor cover and the alternator pulley. There should be about 8 mm of clearance. Use an M8 bolt to check, it should barely fit in the space. If there is not enough space use a washer between the up-pipe bracket and the engine. SEE FIGURE 169

FIGURE 169

8. Direct the water lines downwards off the center housing. Slide both of the water lines into a heat shield sheath (P/N 31042) one at a time. Route the lines along the back of the radiator shroud and along the side of the ECU following the A/C lines. Secure the water lines to the ECU bracket with a zip tie (P/N 2-43620). SEE FIGURE 170

FIGURE 170



9. Direct the ends of the water lines towards the heater hose t-fitting at the back of the engine bay. Run the lines along the side of the cylinder head. Secure the lines to an empty threaded boss on the cylinder head using the included loop strap (P/N 31006), M6 – 1.0 x 16 mm bolt (P/N 30575) and M6 washer (P/N 30591). SEE FIGURE 171 & 172

FIGURE 171

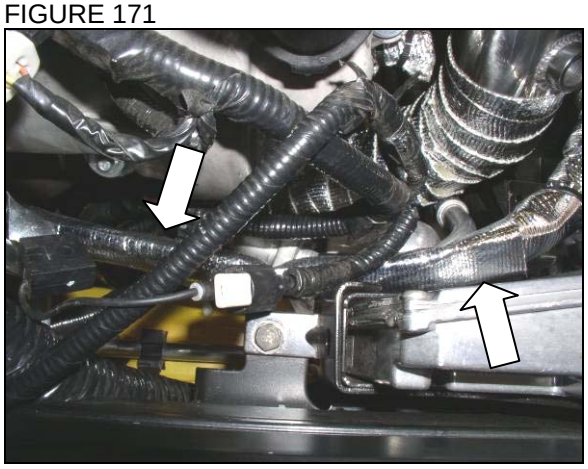
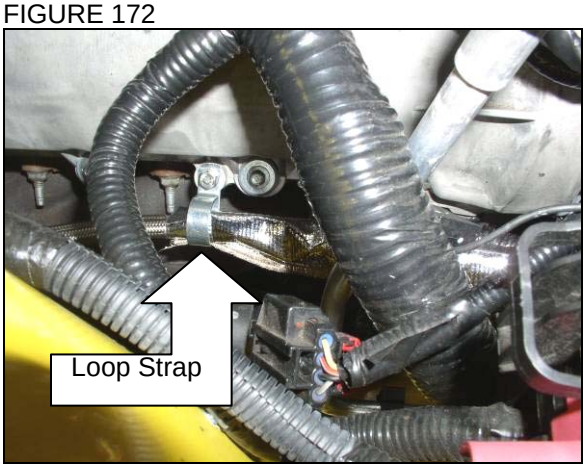
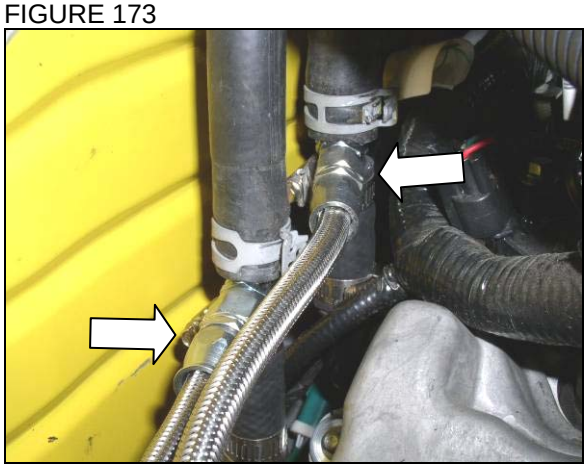


FIGURE 172




10. Using an 11/16” wrench tighten the water lines to the t-fittings previously installed in the heater hoses. Either one of the lines can be attached to either fitting. Ensure that there are no kinks in the lines before securing them. SEE FIGURE 173

FIGURE 173



11. Install the 1/8 NPT x -4AN 90° fitting (P/N 30554) into the oil filter at the top of the turbocharger center housing. **NOTE: Do not use any thread tape or sealant**. SEE FIGURE 174

FIGURE 174

12. Route the oil feed line up from the oil filter housing, behind the power steering pump and up to the top of the turbocharger center housing. Using an 13 mm wrench tighten the line to the 90° fitting. SEE FIGURE 175 & 176

FIGURE 175

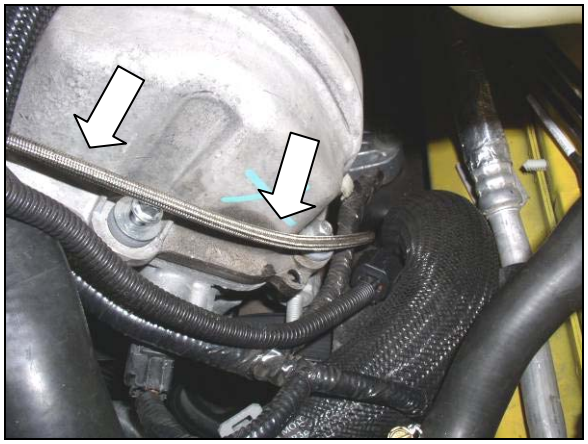
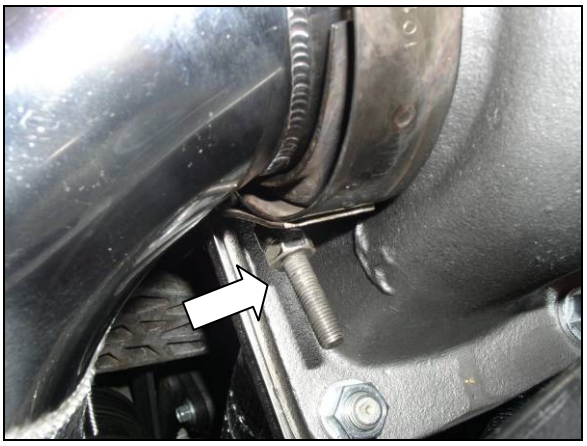


FIGURE 176

13. Mate the v-band flange on downpipe 1 to the outlet of the turbine housing. Loosely secure using a 3.0" v-band clamp (P/N 30242). For clearances and accessibility direct the v-band clamp bolt towards the nut securing the turbine housing to the up-pipe. SEE FIGURE 177 & 178

FIGURE 177

FIGURE 178



14. If downpipe 1 has a bung welded on then coat the threads of the included M18 bolt (P/N 30862) with anti-seize. Install the bolt into the threaded bung on downpipe 1. Tighten with a 17 mm socket. SEE FIGURE 179

FIGURE 179

15. Go back and look over all the exhaust piping. Adjust the pipes so that they do not rub against the body or other components. Ensure that electrical components are not resting on any hot pipes. Extra zip ties are included for use at the installer's discretion. Tighten down the v-band clamps, the up-pipe and downpipe flange connections, the exhaust clamps, etc. Also remove the support wire used to hold up a portion of the factory exhaust during the install.

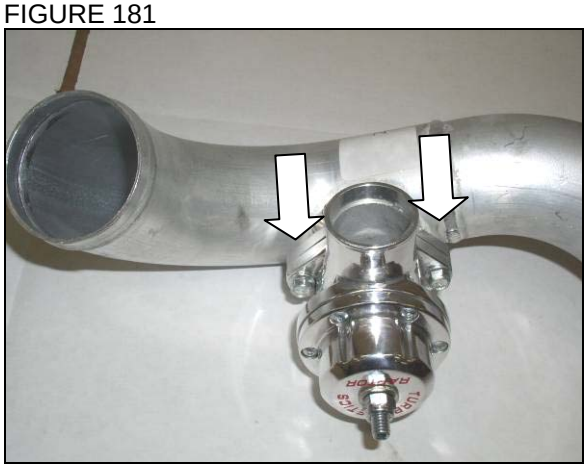
## INTAKE PIPE INSTALLATION

1. Place the included o-ring (P/N 30468) into the recess of the large 2 bolt flange on boost tube 1 (P/N 21673). SEE FIGURE 180

FIGURE 180

2. Install the Raptor blow off valve (P/N 11296) into the flange on boost tube 1. Secure the blow off valve to the pipe using 2 1/4 – 20 x 5/8" bolts (P/N 30248) and tighten with a 3/8" wrench. SEE FIGURE 181

FIGURE 181



3. Wrap the threads of the included 1/8 NPT x 5/32" straight fitting (P/N 30306) with Teflon tape or other thread sealant. Install the fitting into the threaded port in the **cover** of the blow off valve. SEE FIGURE 182

FIGURE 182

4. Slide the 9.50" long 2.5" diameter coupler (P/N 21725) onto the turbo end of boost tube 1. Loosely secure the coupler to the tube with a #36 hose clamp (P/N 30615). Place boost tube 1 into the engine bay. Direct the coupler in first, it fits between the driver side of the radiator and the subframe. SEE FIGURE 183-185

FIGURE 183

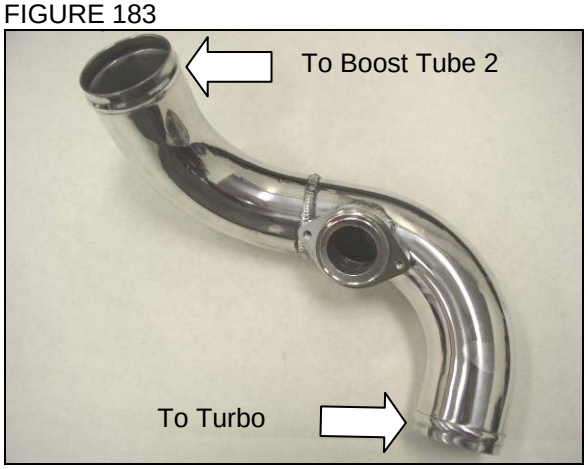


FIGURE 184

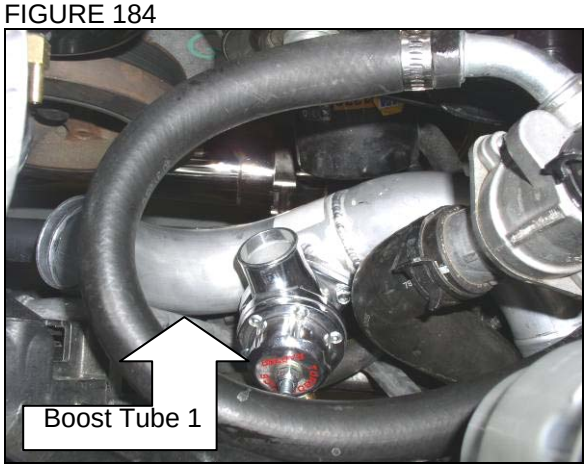
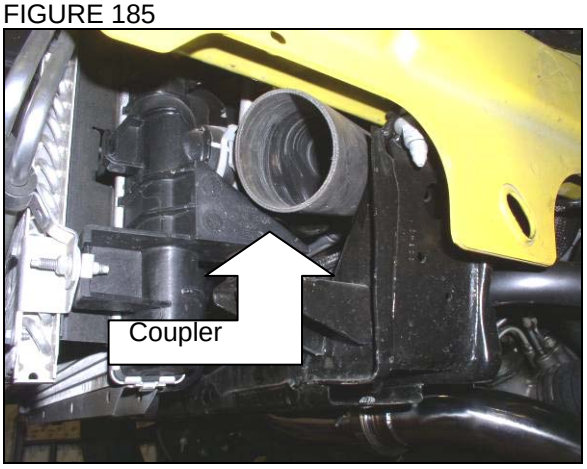



FIGURE 185



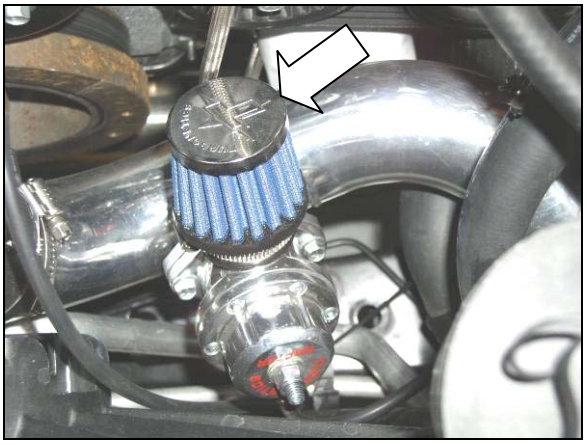

5. Slide the 45° 2.5" diameter coupler (P/N 30444-4) onto the end of the turbocharger compressor outlet. Loosely secure with a #36 hose clamp (P/N 30615). SEE FIGURE 186

FIGURE 186

6. Slide the blow off valve end of boost tube 1 (P/N 21673) into the open end of the 45° coupler on the compressor outlet. Loosely secure with a #36 hose clamp (P/N 30615). Position boost tube 1 so that the outlet of the blow off valve extends upwards. Install the 1.5" inlet air filter (P/N 31184) to the discharge of the blow off valve. Secure the filter to the blow off valve by tightening the hose clamps that is included with the filter. SEE FIGURE 187 & 188

FIGURE 187

FIGURE 188



7. Slide a 45° 2.5” diameter coupler (P/N 30444-4) over the driver side intercooler inlet. Loosely secure with a #36 hose clamp (P/N 30615). Place another #36 hose clamp on the free end of the coupler.

8. Place a #36 hose clamp (P/N 30615) on the free end of the coupler attached to boost tube 1. Install boost tube 2 (P/N 21674) between the intercooler and boost tube 1. Slide the pipe into the couplers and loosely secure with the hose clamps. SEE FIGURE 189 & 190

FIGURE 189

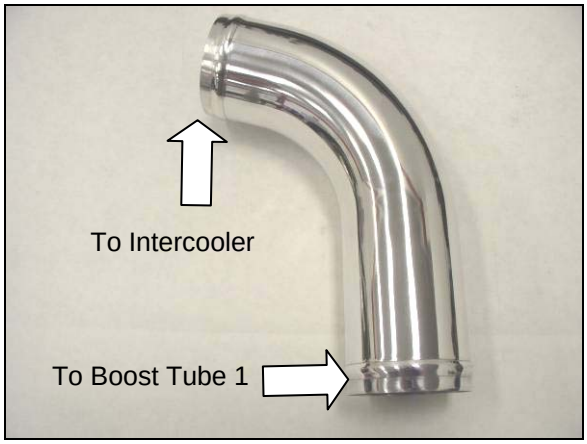


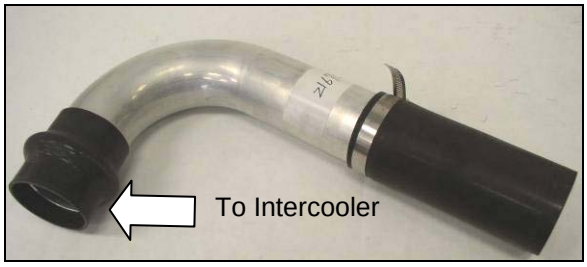

FIGURE 190

9. Adjust the turbo to intercooler piping on the driver side so that the pipes are not resting on any part of the body work. Once adjusted tighten the hose clamps to hold the pipes in place.

10. Slide the 2.50” diameter hump connector (P/N 30380-4) on the short straight of boost tube 3 (P/N 21675). Loosely secure with a #36 hose clamp (P/N 30615). SEE FIGURE 191

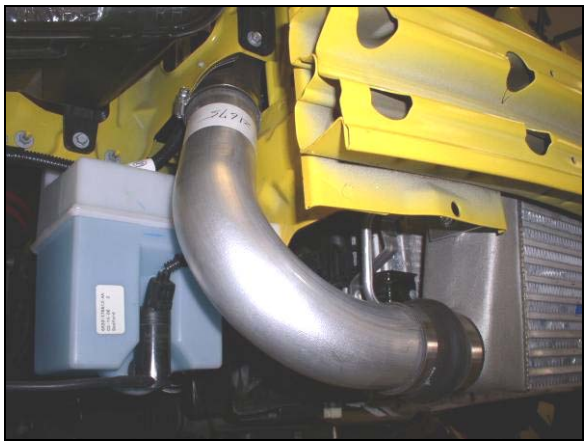
11. Slide the 6.5” long 2.50” diameter coupler (P/N 21364) onto the long straight of boost tube 3. Loosely secure with a #36 hose clamp (P/N 30615). SEE FIGURE 191

FIGURE 191




12. Place a #36 hose clamp (P/N 30615) on the open end of the hump connector on boost tube 3. Install boost tube 3 onto the passenger side intercooler outlet. The hump connector attaches to the intercooler while the long 2.5” diameter straight coupler (P/n 21364) is directed to the side of the bumper support and into the engine bay. Place a #36 hose clamp (P/N 30615) on the end of the long straight coupler (P/N 21364). SEE FIGURE 192

FIGURE 192



13. Install the cast transition elbow (P/N 40300P) with the 2.5” diameter side attached to the 2.5” diameter silicone hose that is attached to one end of intercooler boost tube P/N 21675. Secure the cast transition elbow (P/N 40300P) to the silicone hose coupling with a supplied #36 hose clamp (P/N 30615).
SEE FIGURE 193

FIGURE 193

14. Install a 4” diameter silicone hose coupling (P/N 30302-4) onto the 4” diameter side of the cast transition elbow (P/N 40300P). Slide 2 #74 hose clamp (P/N 31167) over the 4” diameter silicone hose coupling.
SEE FIGURE 194

FIGURE 194

15. Slide a 1.5” diameter coupler (P/N 31000) on either end of the new coolant pipe (P/N 21695). Secure the couplers to the pipe with 2 #20 hose clamps (P/N 30612). Secure the long straight end of the coolant pipe to the passenger side of the radiator using a #20 hose clamp (P/N 30612). Secure the other end of the pipe to the coolant inlet on the engine with a #20 hose clamp (P/N 30612). SEE FIGURE 195 & 196 for ’05-’06 model years and FIGURE 197 & 198 for ’07 model years.

FIGURE 195

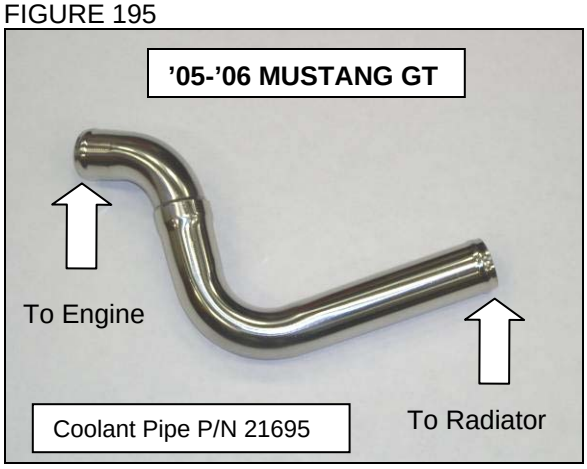



FIGURE 196

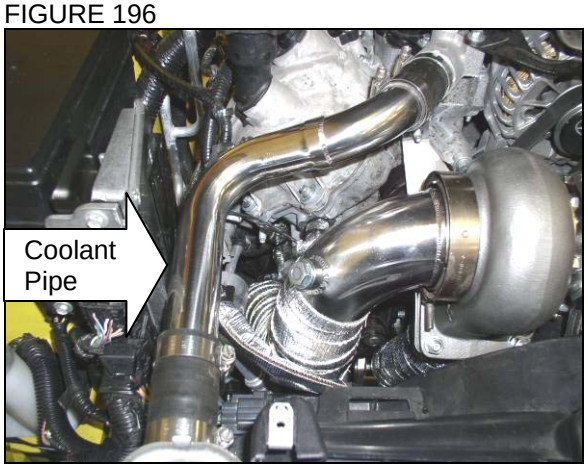



FIGURE 197

’07 MUSTANG GT

Coolant Pipe P/N 21754

FIGURE 198

16. Place the included turbine heat shield (P/N 31172) over the turbocharger turbine housing. Secure using safety wire (P/N 31093). SEE FIGURE 199

FIGURE 199

17. Place the factory metal coolant reservoir mounting hole clips on the new coolant reservoir bracket (P/N 21682). SEE FIGURE 200-202

FIGURE 200

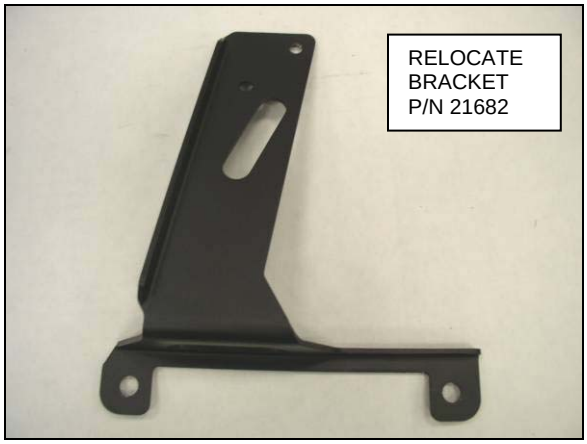



FIGURE 201

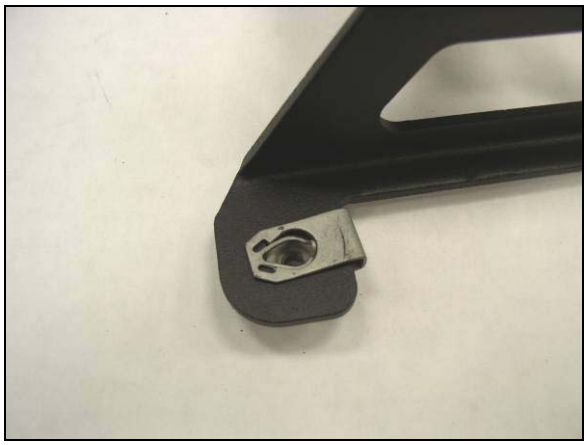


FIGURE 202

18. On the ’05-’06 model year vehicles, mount the coolant reservoir bracket (P/N 21682) in the engine bay on the driver side strut tower. Secure with a 10 mm socket and the factory bolts. SEE FIGURE 203 & 204

FIGURE 203

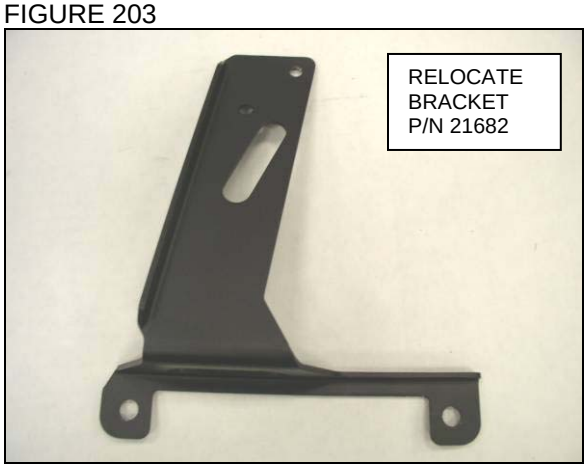
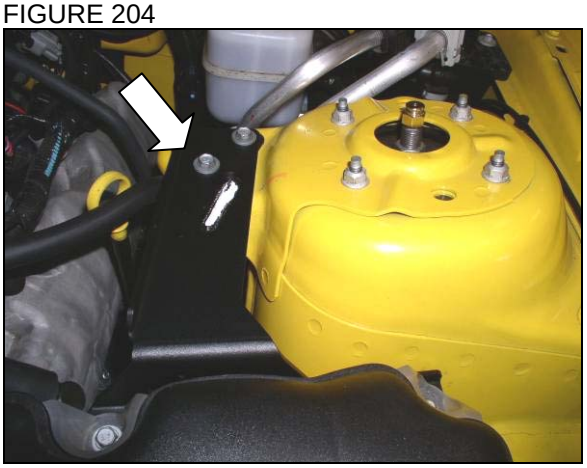



FIGURE 204



19. On the ’07 model year, unscrew the two nuts on the driver side shock tower that is closes to the engine and install the supplied radiator reservoir relocate bracket adapter (P/N 21761) and secure using the factory hardware. Mount the coolant reservoir relocator bracket (P/N 21682) to the bracket adapter (P/N 21761) using a 10mm socket and factory bolts. SEE FIGURE 205-209

FIGURE 205

FIGURE 206

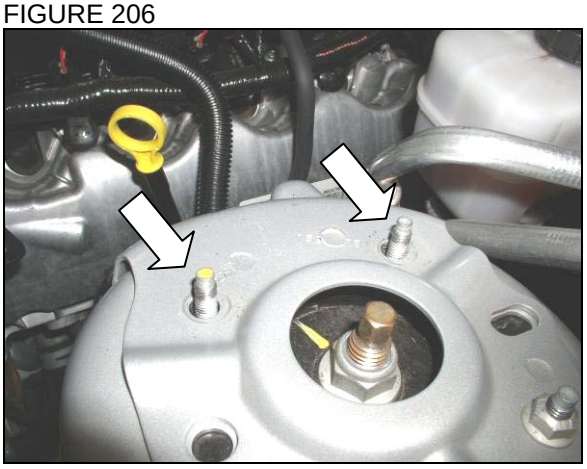


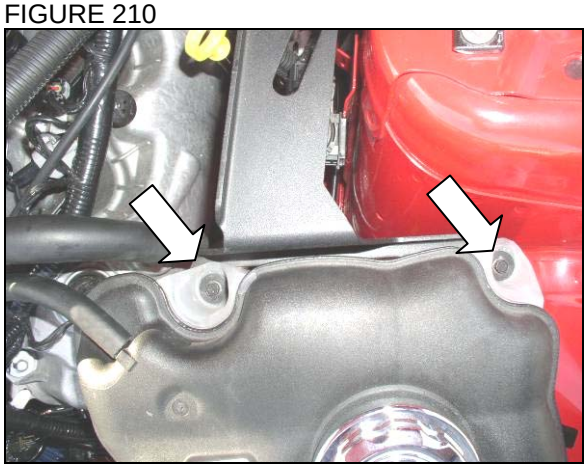
FIGURE 207

FIGURE 208

FIGURE 209

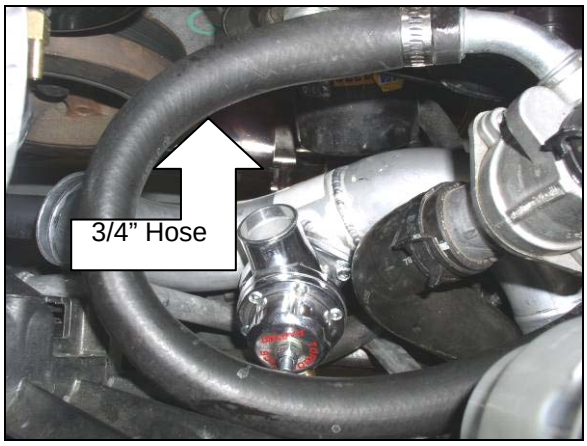
20. Install the coolant reservoir on the new bracket. Secure using an 8 mm socket and the factory bolts. SEE FIGURE 210

FIGURE 210



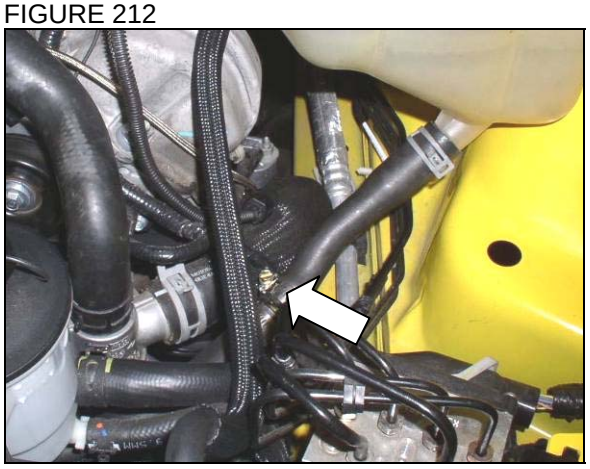
21. Cut a 23” long piece of the included 3/4” hose (P/N 31027). Using a hose clamp (P/N 30817) secure one end of the hose to the coolant port on the thermostat housing. Route the other end of the hose towards the bottom of the coolant reservoir. SEE FIGURE 211

FIGURE 211




22. Insert half of the included hose coupler fitting (P/N 30998) into the open end of the 3/4” hose. Secure using a hose clamp (P/N 30817). Insert the other half of the hose coupler into the hose attached to the bottom of the coolant reservoir. Secure with a hose clamp (P/N 30817). SEE FIGURE 212

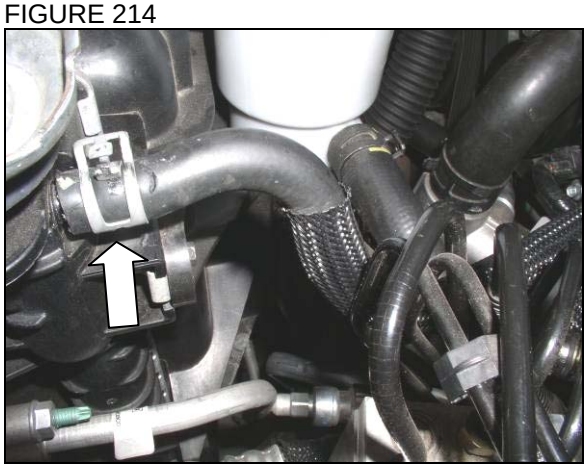
FIGURE 212



23. Install the factory coolant overflow hose between the top of the coolant reservoir and the port at the top driver side of the radiator. Secure using the factory hose clamps. SEE FIGURE 213 & 214

FIGURE 213

FIGURE 214



24. Using a T20 torx driver remove the MAF sensor from the factory air box. SEE FIGURE 215

FIGURE 215

25. Using a #72 hose clamp (P/N 31167) to secure the 4.0” diameter hump coupler (P/N 30630-4) onto the turbocharger inlet. Place another #72 hose clamp (P/N 31167) on the open end of the coupler. SEE FIGURE 216

FIGURE 216

26. Using an 8 mm socket loosen the bolt on the front of the driver side valve cover. SEE FIGURE 217

FIGURE 217

27. Place the new intake tube in the engine bay. The end of the tube farthest from the MAF sensor is the end that faces the turbocharger inlet. Attach the flex hose from the blow off valve to the large port in the new intake tube. Secure using a #20 hose clamp (P/N 30612). SEE FIGURE 218 & 219

FIGURE 218

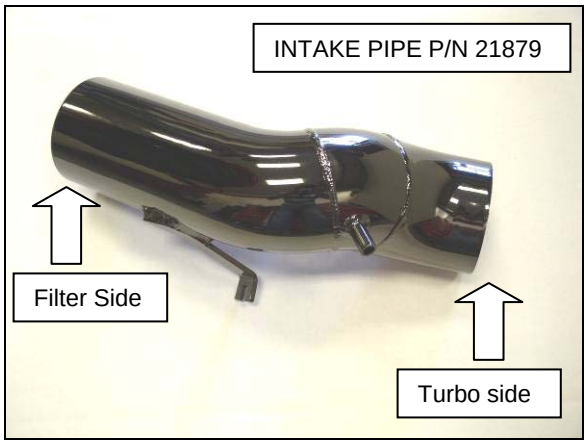
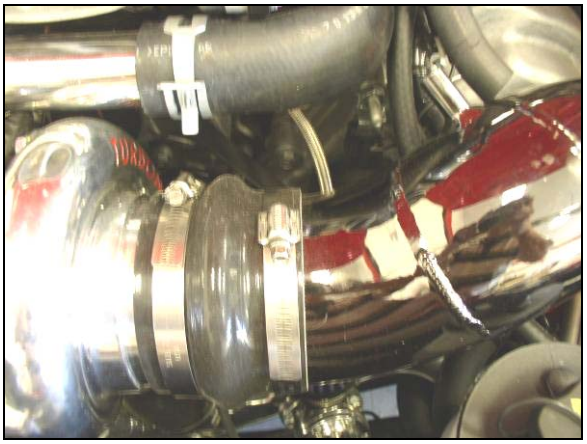
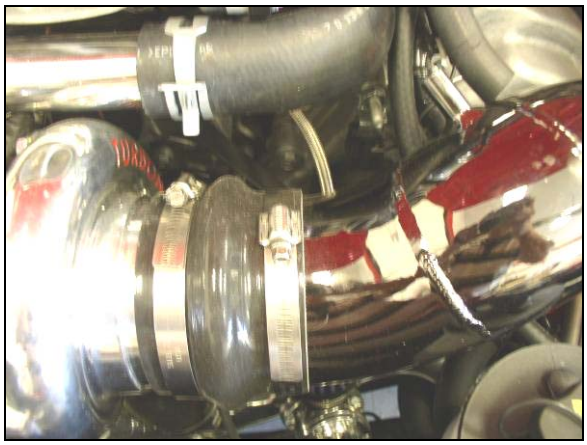



FIGURE 219



28. Insert the new intake tube into the open end of the 4.0” hump coupler on the turbocharger inlet. Loosely secure with the hose clamp. Place the intake tube bracket underneath the loosened bolt on the valve cover. Loosely secure the bracket with the bolt. SEE FIGURE 220

FIGURE 220



29. Install the included air filter (P/N 31163) on the open end of the intake tube. Loosely secure with the included hose clamp. SEE FIGURE 221

FIGURE 221

30. Adjust the air intake tube and air filter so that they do not contact any other parts in the engine bay. Once adjusted tighten all the hose clamps and the valve cover bolt for the bracket.

31. Cut the included 3/8” diameter hose (P/N 30828) to a length of 27”. Insert one end of the hose onto the small port on the air intake tube. Route the hose behind the alternator and underneath the throttle body to the vacuum port on the passenger side cylinder head. The port is located by the oil cap. No hose clamps are necessary to secure the hose. SEE FIGURE 222 & 223

FIGURE 222

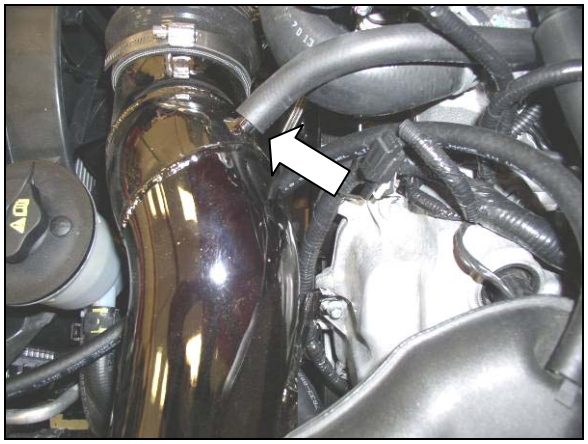


FIGURE 223

32. Install the included 4" silicone coupler (P/N 21790-4) onto the throttle body. Secure using the factory hose clamp from the stock intake. Place a #72 hose clamp (P/N 31167) on the round end of the coupler. SEE FIGURE 224 & 225

FIGURE 224

FIGURE 225

33. Install the factory MAF meter into cast intake pip (P/N 21780S) and secure the sensor to the tube using the factory screws. SEE FIGURE 226

FIGURE 226

34. Insert the cast intake pipe (P/N 21780S) into the coupler on the throttle body. The oval end of the tube is the end that mates to the throttle body. Insert the other end of cast intake pipe (P/N 21780S) into the coupler at the of the cast elbow P/N 40300P. Loosely secure with the hose clamps. SEE FIGURE 227 & 228

FIGURE 227

FIGURE 228

35. Adjust boost tube 3 and boost tube 4 so they do not rest on any of the body work or other components. Once positioned tighten all hose clamps.

36. Cut a piece of the included 5/32" diameter silicone hose (P/N 30542-BK). Attach one end of the hose to the fitting installed in the compressor housing. Route the other end down to the wastegate. Attach the hose to the fitting installed in the wastegate base.

37. Cut a piece of the included 5/32" diameter silicone hose (P/N 30542-BK). Attach one end of the hose to the fitting installed in the cover of blow off valve. Route the other end of the hose to the driver side cylinder head. The end of the hose attaches to the t-fitting installed near the fuel rail.

## Gapping the Spark Plugs

1. Remove the 8 factory coil packs (4 per side) from the head of the engine by unbolting the bolt using a 7mm socket. SEE FIGURE 229 & 230

FIGURE 229

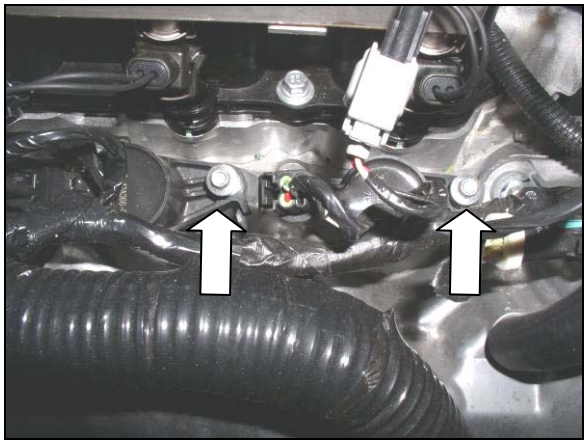
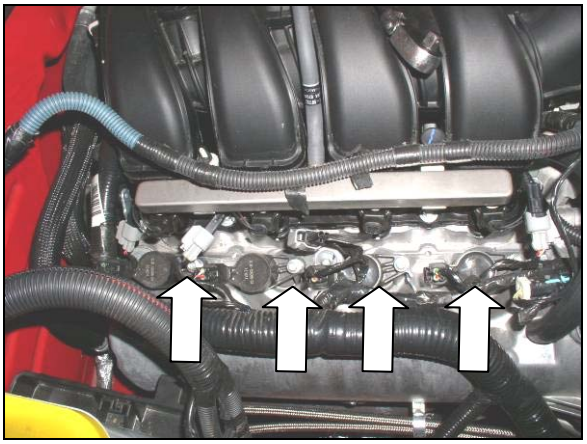


FIGURE 230



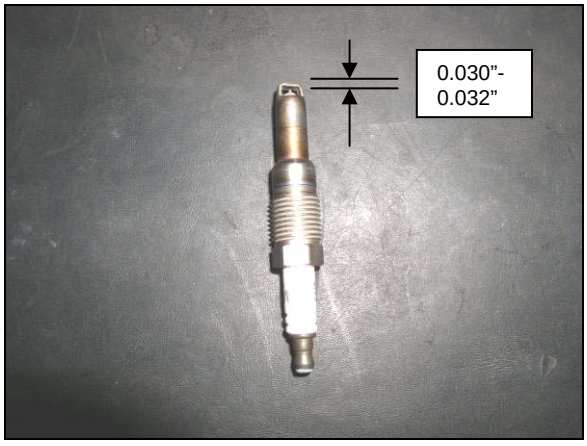
2. Carefully lift each coil pack up and set it to the side. SEE FIGURE 231

FIGURE 231

3. Using a 9/16” spark plug socket and a long extension, carefully remove the spark plug from the engine. Making sure no debris falls into the spark plug hole when the plug is removed.

4. Once the plugs are removed, gap each of them to 0.030”-0.032”. SEE FIGURE 232

FIGURE 232




5. Double check all plug to make sure they were gapped correctly and re-install everything in reverse order.

## CONNECTING THE MAF METER HARNESS

1. Install the black split loom (P/N 31159) onto the MAF extension harness (P/N 31222), trim the split loom as necessary.

2. Plug the supplied MAF extension harness to the factory MAF meter that is installed in the cast intake pipe (P/N 21780S). Route the new extension harness under the throttle body / intake manifold to the other side of the vehicle. SEE FIGURE 233-237

FIGURE 233

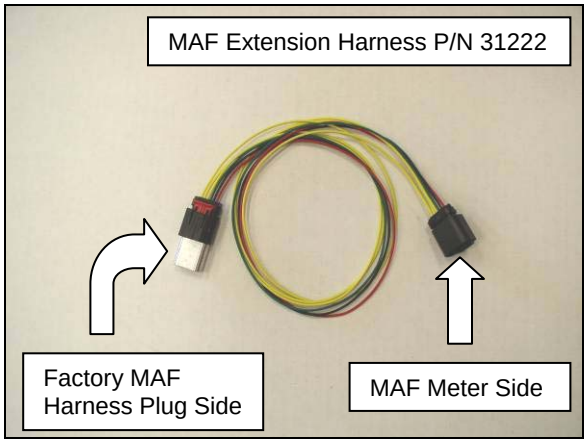



FIGURE 234

FIGURE 235

FIGURE 236

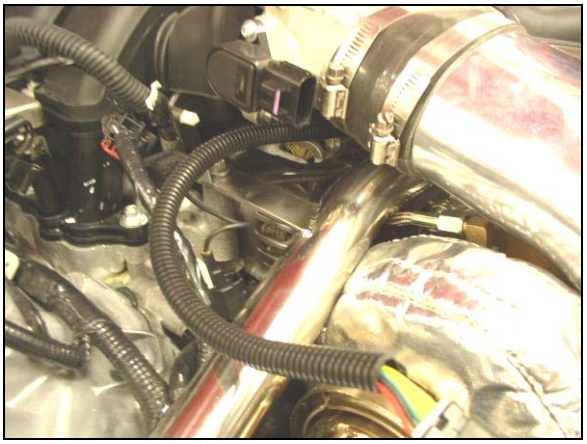
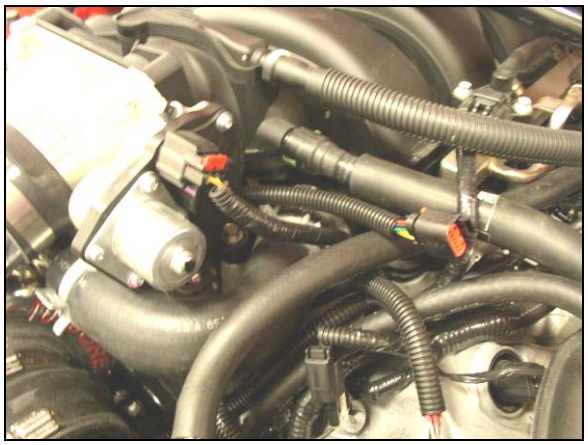


FIGURE 237

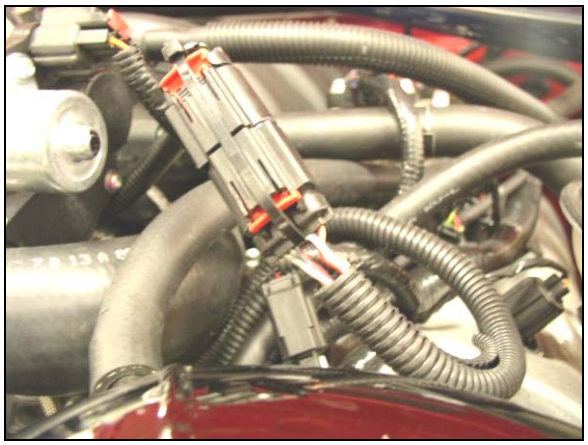


3. Plug the MAF extension harness onto the factory MAF harness making sure both plugs are in contact with each other. Using the supplied tie wrap, secure both plugs together by inserting the tie strap in the middle of one harness and around to the middle of the other harness. SEE FIGURE 238-240

FIGURE 238

FIGURE 239

FIGURE 240



**CLEAN UP**

1. Using a hammer knock the factory bolts out of the lower subframe brace. Place the brace in a clamp. With the factory nuts threaded onto the tips of the bolts tap the nuts with a hammer until they break loose. SEE FIGURE 235 & 236

FIGURE 235

FIGURE 236

2. Reinstall the front lower subframe brace using new hardware. Insert 2 M10 – 1.25 x 40mm bolts (P/N 31003) into one end of the brace. Place a 0.80" thick spacer (P/N 21705) on both bolts. Repeat for the opposite end of the brace. Install the brace back in the stock location and secure using 4 M10 nuts (P/N 30803) with 4 M10 lock washers (P/N 30805). SEE FIGURE 237-239

FIGURE 237

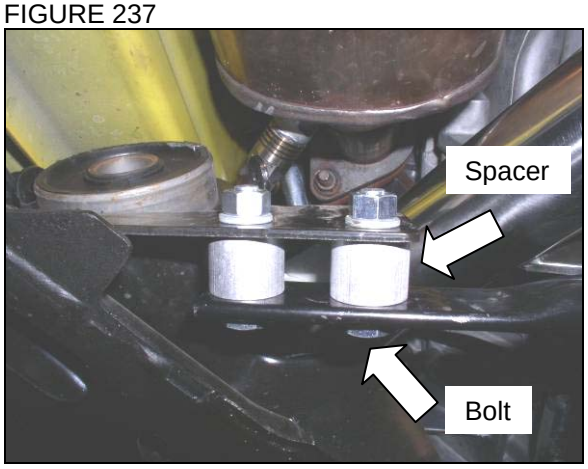



FIGURE 238

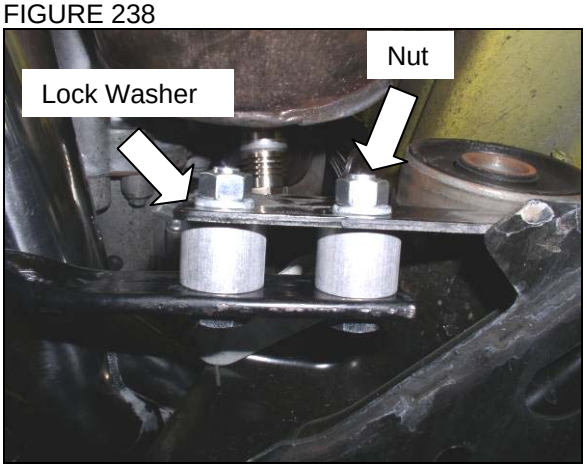
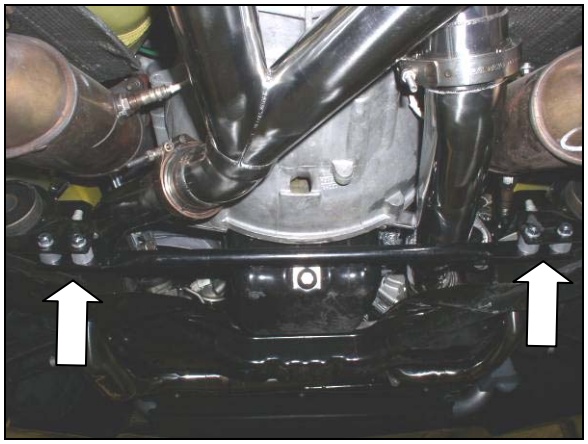



FIGURE 239



3. Review these instructions to make sure that all fasteners, clamps & electrical connections have been installed and torqued correctly.

4. Check that all hose routings are free of any kinks or near any hot or abrasive surfaces that may cause wear over time. Adjust or reroute as necessary to provide adequate slack for engine movement.

5. Reinstall the body work and battery in the reverse order of its removal.

6. Refill all fluids (oil, power steering and coolant) to factory recommended levels. The use of synthetic motor oil (with the factory recommended oil weight) is strongly recommended, as it will prolong the life of the turbocharger. Regardless of factory recommended intervals, the addition of a turbocharger requires that the oil be changed every 3,000 miles.

7. The use of premium octane unleaded fuel is required for proper engine performance and to reduce the possibility of internal engine damage from detonation.

## ECU REPROGRAMMING

1. The SCT Uploader (P/N 21898) is preloaded with the tune for your vehicle. To upload the tune to your vehicle, follow the instructions that came with the SCT uploader.

**“NO FAULT / NO HASSLE” WARRANTY PROGRAM:**

TURBONETICS will repair or replace, at our expense, any new TURBONETICS / Spearco products that fail, including products used in racing or competition applications, for a period of one year from the original date of purchase. All turbocharger and cartridge assemblies have a factory installed inline oil filtration device. This filter device must remain in place if any warranty is to be considered under the No-Fault / No-Hassle program. Electrical components that fail due to misuse are not covered under the No-Fault / No-Hassle Warranty Program.

Warranty is limited to TURBONETICS products and does not include progressive or subsequential damage and does not cover removal or installation labor or associated parts. No warranty is made for any other claims for special, indirect or consequential damages including but not limited to component removal or installation equipment downtime, prospective profits or other economic loss.

Warranty will not be granted for recurring damage, malfunction, or failure due to improper installation, misuse, unauthorized repair or alterations, or externally induced physical damage.

Warranty is non-transferable and must be processed via the original purchaser from TURBONETICS.

Remanufactured units, performance upgraded units, and O.E.M. replacement units are covered by a 90-day warranty or the O.E. warranty period.

TURBONETICS highly recommends that the installation of mechanical or electrical parts be performed by trained professionals. Improperly installed products may lead to unsafe and unreliable conditions.

**RETURN POLICY:**

Only unused and complete merchandise may be accepted for return subject to inspection and acceptance by TURBONETICS. No goods will be accepted without prior return authorization from TURBONETICS. Call for approval and RGA (Returned Goods Authorization) tracking number. No returns will be accepted without an RGA tracking number. No returns will be accepted after ninety (90) days from the original shipping date from TURBONETICS unless approved. All approved returns are subject to a 15% restocking charge – NO EXCEPTIONS. The original invoice must accompany the return. Accepted warehouse / distributor and open account returns will be issued credit only.

**RETURNED GOODS AUTHORIZATION TRACKING NUMBER:**

TURBONETICS will only accept product returns, repair orders / upgrades, and warranty requests that have been approved and are returned with a corresponding RGA (Returned Goods Authorization) tracking number.

Contact TURBONETICS for approval and the RGA number. Write the RGA number clearly on the outside of the package and include it inside the package. This is very important in allowing us to properly identify and process your request. Failure to comply with this requirement will result in the delay of processing or the product being returned to you.